The movement of PMRI for 10 years has become a consideration that PMRI is a good education in Indonesia. Many experiences contributed the ideas for improving the standards of several PMRI’s aspects. The increase in number of schools and universities is one reason to determine the standards and characteristics of PMRI. There has been a strong belief in a bottom-up approach so it is limit to this adaptation. The standards are the PMRI movement’s first quality assurance system, by which the quality of PMRI can be assured and the integrity of the concept can be maintained. The development of the standards went through several stages. In the first stage, the discussion boiled down to defining the function of the PMRI standards:

1. To (self) evaluate.
2. To communicate and influence (opinion, policy).
3. To safeguard the integrity of the PMRI concept.
4. To improve PMRI practices.

In the second stage, developing standards was to establish the topics that standards are actually addressing. The need was felt to pinpoint some standards on teachers, lessons, principals, schools, lecturers, workshops, universities, lesson materials, and assessment. A further analysis showed that these objects can be roughly categorized in three very general categories: people, activities, and institutions.

<table>
<thead>
<tr>
<th>School related</th>
<th>University related</th>
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<tbody>
<tr>
<td>People</td>
<td>Teacher</td>
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<tr>
<td>Activities</td>
<td>Lesson</td>
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<tr>
<td>Institutions</td>
<td>school</td>
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<td>other</td>
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<td>Workshop</td>
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<td>Local PMRI center</td>
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<td>Lesson material</td>
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<td>Assessment</td>
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Figure: Scope of standards

For further discussion, the number of topics for standards was reduced. The standards for schools and assessment were deleted for several reasons. One of the reasons to dismiss standard for school that they are base standard for principals but they do not have directly affect to the PMRI team. The standards for assessment were also dismissed because Indonesia has different kind of assessment between classroom and regional assessment for every grade organized by the local and regional Department of Education and national assessment by the national exams. Standards for regional and national assessment are not really effective because they are not straight control of the PMRI team. Thus, they formulated the standards for more general principle because the standards only make for things that we can effectively control and influence.

The standards have to show that they are derived from theory. On the other hand, the standards must give directions clearly for practice with a certain degree of autonomy in doing the actual activities.
In a meeting with stakeholders, their comments were collected and the final version of standards was formulated from them.

Standards for a PMRI Teacher:
1. A teacher has a repertoire of mathematics and PMRI didactics to develop a rich learning environment.
2. A teacher coaches students to think, discuss, and negotiate to stimulate initiative and creativity.
3. A teacher guides and encourages students to express their ideas and find own strategies.
4. A teacher manages class activities in such a way to support students’ cooperation and discussion for the purpose of knowledge construction.
5. Teacher together with students summarize mathematics facts, concepts, principles through a process of reflection and confirmation.

Standards for a PMRI Lesson:
1. PMRI lesson fulfill the accomplishment of competences as mentioned in the curriculum.
2. PMRI lesson starts with realistic problem to motivate and help students learn mathematics.
3. PMRI lesson gives students opportunities to explore and discuss given problems so that they can learn from each other and to promote mathematics concept construction.
4. PMRI lesson interconnects mathematics concepts to make a meaningful lesson and intertwining of knowledge.
5. PMRI lesson ends with a confirmation and reflection to summarize learned mathematical facts, concepts, and principles and is followed by exercises to strengthen students’ understanding.

Standards for PMRI Teaching Material:
1. Teaching materials are in line with curriculum.
2. Teaching materials use realistic problems to motivate students and to help students learn mathematics.

Standards for a PMRI Lecturer:
1. A lecturer uses PMRI principles during the courses to help student-teachers experience and understand PMRI.
2. A lecturer teaches in a way that supports interactivity in the classroom as a reflection of the principle of PMRI teaching.
3. A lecturer observes PMRI classrooms to collect data and information that can be integrated in the courses at university and can be used as basis for research to develop PMRI.
4. A lecturer supports teachers to implement PMRI at school.
5. A lecturer conducts research and makes publication about PMRI.

Standards for a PMRI Workshop:
1. Activities in a workshop are process-oriented that can support the participants to understand PMRI ideas and product-oriented that can be used in school.
2. A workshop facilitates participants to experience the PMRI characteristic themselves to build their knowledge and skills.
3. Contents of a workshop are in line with curriculum demand, internal and external condition of school, and envision an ideal situation in order to enhance adaptability of PMRI in school.
4. During a workshop, participants reflect on the relation between the activities, mathematical concepts and PMRI theories.
5. A workshop empowers and builds confidence of the participants to sustain implementation of PMRI in schools.

Standards for a Local PMRI Center (LPC):
1. An LPC is an organization for lecturers, teachers, and student-teachers to do researches and develop PMRI.
2. An LPC is an information and consultation center about PMRI that provides information, books, teaching materials, teaching media, agendas for professional development, workshops and trainings, journals, magazines, and videos. An LPC is a training center that offers attractive and well-organized training on PMRI that focus on the process and content.
3. An LPC is a training center that offers attractive and well-organized training on PMRI that focus on the process and content.
4. An LPC is a communication center that creates cooperation between partners schools, teacher training colleges, other LPCs an national and international centers.
5. An LPC is an organization that is legalized by the rector of the university as a semi-independent organization with office and staffs.

PMRI Principles:
1. Guided reinvention and progressive mathematization.
2. Guided reinvention and progressive mathematization.

PMRI Characteristics:
1. Use of contexts in phenomenologies exploration.
2. Use of models for mathematical concept construction.
3. Use of students’ creations and contributions.
4. Active and interactive in the learning process.
5. Intertwining among mathematics aspects and units.
6. Typical characteristic of Indonesian nature and cultures.

The above items will act as the standards for at least the next three to five year. After that time, a new reflection on the evolving practices in a much larger number of schools can lead to new or revised standards.