A REFLECTION PAPER ON UNDERSTANDING MALAYSIAN PRE-SERVICE TEACHERS MATHEMATICAL CONTENT KNOWLEDGE AND PEDAGOGICAL CONTENT KNOWLEDGE

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Teachers play a vital role in nurturing and shaping learners in school. In Malaysia, like many other countries such as Philippines, teachers’ competence is very essential in order engage engages students actively in the classroom. The role of mathematics in our society is very significant. Thus, there is a pressing need to develop students’ knowledge and skills in mathematics in order to achieve this must equip teachers’ competence and knowledge in teaching mathematics. This is possible through the students and teachers’ concerted efforts. Teacher qualities are important determinants of student achievement. Therefore, there is a need to focus on teacher competence through the development of teachers’ MCK and MPCK. It has been recognized that the foundation of mathematics MCK and MPCK is thought to be the amalgam of a teacher’s pedagogy and understanding of content such that it influences his/her teaching in ways that will best stimulate student learning for understanding.

Pre-service mathematics teachers deal with different aspects of learning, teaching, and curricular issues in their teacher education programs. Teacher education programs provide several content, general pedagogy, and content-specific methods courses to support the development of professional knowledge for teaching. In this manner, the teacher education institutions must provide quality content knowledge and pedagogical content in teaching mathematics so that the pre-service teachers are expected to construct and improve different knowledge domains for effective teaching in mathematics.
In Malaysia’s authors point of view, there quality of mathematics education is deteriorating because their mathematics teachers are not fully equip or their mathematics content knowledge and mathematics pedagogical content knowledge in teaching the subject. In order to address this issue, they need to change the curriculum in mathematics education so that pre-service teachers in mathematics will be equipped in knowledge content and pedagogical content in teaching mathematics. Mathematics content knowledge (MCK) and Mathematics pedagogical content knowledge (PCK) are an essential and critical element in determining a teacher’s success in handling the teaching and learning process that further produces effective teaching. Therefore, pre-service mathematics teachers will grasps enough skills and knowledge in teaching the subject in their training institution. When the education training institution provides an in-depth MCK and MPCK to their students it will help them to acquire knowledge of planning and organization of a lesson and teaching strategies. The mathematics pre-service teachers will have strong mathematics content knowledge and mathematics pedagogical content knowledge that will help them in their teaching activities and they are able to choose tasks, examples, representations, and teaching strategies that are appropriate for their future students and they will know how to facilitate classroom discourse and manage time for classroom activities effectively.

Based on the study, Malaysian mathematics pre-service teachers in both primary and secondary in terms of MCK and MPCK were both weak as compared to the international standard. Malaysian mathematics experts should work hand in hand with Malaysian teacher institution to craft better mathematics curriculum aligned with MCK and MPCK that will provide enough knowledge and skills in teaching mathematics for Malaysian pre-service teachers that can help to improve their mathematics achievement test, it be leveled to surpassed the MCK and MPCK international standards.

Through this study, it will transform the quality of mathematics education in the colleges and universities in Malaysia because they afraid of what kind of mathematics
teachers they will have if this issue will not address. The preparation of future mathematics teachers of is mostly in full swing, often difficult, and generally unavoidable but Malaysian mathematics education system must adapt with the trends internationally so that they become globally competitive in terms of mathematics education. Malaysian government and Malaysian teacher education should work in collaboration in developing mathematics education program that will gear mathematics pre-service teachers in their mathematics content knowledge and mathematics pedagogical content knowledge because mathematics pre-service teachers will do what they have been taught at their training institution. The authors were committed in ensuring the qualities of mathematics education in Malaysia for the benefit of Malaysian students though for them there are so many things to be done in improving the MCK and MPCK of Malaysian pre-service teachers because of their low performance in mathematics achievement test. This study will serve an eye opener to improve the quality of Malaysian mathematics pre-service teachers’ knowledge and skills in teaching mathematics. This study will have a remarkable change in its mathematics programs for primary schools, secondary schools and teachers' training institution in Malaysia.

Reference: