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Teaching Maturity Model (TeaM)

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No Institute Given

1 TeaM Model

The objective of an educational institution is the quality of teaching. Due to practical experiences in teacher training we think that there are some factors which influence the quality of teaching. Among others, these factors are: Teachers skills, methodology, motivation of teachers and pupils, the mood of teachers and pupils, the set of teaching materials, infrastructure/environment, and so on. In this paper we now concentrate on the teacher factor and on his/her teaching process in primary, secondary and higher education.

Table 1. The Capability and Maturity levels of TeaM

Level	Capability Level
0	Deficient - Not enough recourses for the teaching process
1	Accomplished - Is a process that accomplishes the needed work for the teaching process. It result on improvement.
2	Reflected - Is an accomplished process that is planned and executed in accordance to the policy. There is the plan for performing the process, resources are provided, responsibilities are taken, is controlled, monitored and reviewed.
3	Defined - There is a standardised process associated to the PA which is customized based on the needs.

Level	Maturity Level
1	Chaotic - the teaching process is chaotic.
2	Initial - the teaching process is under minor control and efficiency.
3	Repeatable - the teaching process is sparsely standardized and monitored.
4	Stable - the teaching process is standardized, monitored and controlled.
5	Optimizing - the teaching process is improved and ready for further teaching process upgrades (improvements).

1.1 TeaM Levels

The teaching maturity model (TeaM) aims at assessing and improving the teaching process. The improvement and assessment are defined by two representation

paths: continuous representation (*Capability Level (CL)*) and stage representation (*Maturity Level (ML)*). Continues representation improves the process by focusing on an individual process area. Stage representation improves the process by focusing on a set of related process area. The levels present both the evolutionary path and the rate of the teaching process after the appraisals. We say that a process has improved when it upgrades the steps until the maximal level is reached. Table 1 shows the features of maturity and capability levels. Unlike CMMI, TeaM has four levels for Capability and five levels for maturity. They are summarized in Table 1 .

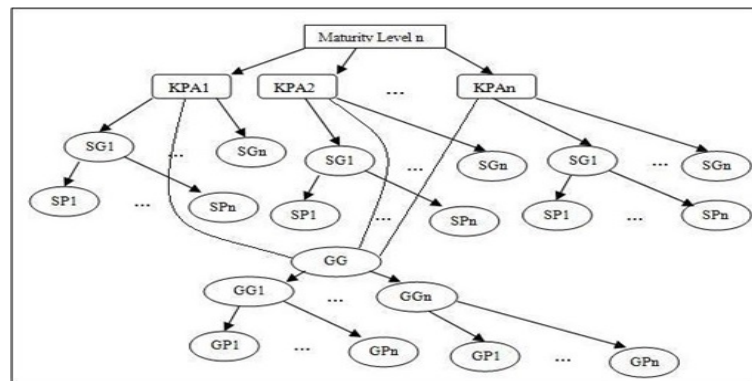


Fig. 1. The Specific and Generic Goals and Practices.

1.2 TeaM Process Areas

Process areas (PA) are the fundamental activity for TeaM. Each PA consists of Specific Goals (which include specific practices) and Generic Goals (which include generic practices). Specific goals are specific to a PA, while generic goals are common for all PA (1). The latter have to do with the institutionalization of the process area (Capability Level). A set of specific goals should be fulfilled in order to pretend the maturity of a process. A maturity level is achieved when all the process areas assigned to that level reach the maximum capability level (completion of all generic goals). For instance, to reach maturity level 2, all process areas assigned to maturity level 2 must achieve capability level 2 or 3. To reach maturity level 4, all the process areas assigned to maturity levels 2, 3 and 4 must achieve capability level 3 (the maximal level).

The model comprises 10 PAs, 30 Specific Goals (SG) and 3 Generic Goals (GG). Due to its size, it can be found at the TeaM Project site in its later version [1].

Table 2. The TeaM Process Areas with the corresponding Specific Goals

Process Area	ML	Specific Goals
Teaching Unit Delivery	2	SG1.Establish agreement for Teaching Unit SG 2.Prepare for Teaching Unit Delivery SG 3. Deliver Knowledge
Incident Resolution and Prevention	3	SG 1. Prepare for Incident Resolution and Prevention SG 2. Identify, Control and Address Individual Incidents SG 3. Analyse and Address Causes and Impact of Selected Incidents
Teaching Unit System Development	3	SG 1. Develop and Analyse Stakeholder Requirements SG 2. Develop Teaching Unit System SG 3. Verify and Validate Teaching Unit System
Teaching Unit System Transition	3	SG 1. Prepare for Teaching Unit System Transition SG 2. Deploy the Teaching Unit System
Teaching Unit Continuity	3	SG 1. Identify Essential Teaching Unit Dependencies SG 2. Prepare for Teaching Unit Continuity SG 3. Deploy and Validate Teaching Unit Continuity Plan
Work Monitoring and Controlling	4	SG 1. Monitor the Work Against the Plan SG 2. Manage Corrective Action Closure
Environment / Infrastructure Management	2	SG 1. Manage Environment SG 2. Manage and Utilize Infrastructure
Course Design	2	SG 1. Establish the Course Objectives and Plans SG 2. Establish Course Materials SG 3. Materials Integrity SG 4. Course Layout SG 5. Selection of Teaching Methodology SG 6. Learning Verification
Teaching Process Control	4	SG 1. Define the Assessment Criteria SG 2. Assessment and Management of Teaching Process
Teaching Process Reflection	5	SG 1. Improve Infrastructure / Environment SG 2. Improve Course Materials SG 3. Improve the Teaching Methodology SG 4. Skills Improvement

Table 3. The Maturity level of the Case Study

Process Areas	Chaotic	Initial	Repeatable	Stable	Optimizing
Teaching Unit Delivery	0	2	3	3	3
Incident Resolution and Prevention	0		1	3	3
Teaching Unit System Development	0		2	3	3
Teaching Unit System Transition	0		2	3	3
Teaching Unit Continuity	0		3	3	3
Work Monitoring and Controlling	0			2	3
Environment / Infrastructure Management	0	1	3	3	3
Course Design	0	2	3	3	3
Teaching Process Control	0			2	3
Teaching Process Reflection	0				3

2 Case Study

In order to demonstrate the usability of the model, let us introduce two types of teachers. The names are randomly picked up and generalised.

- Anna, a teacher with little experience and minor motivation who only provides the necessary materials for creating the teaching units, does not do assessment of her methodology, sparsely manage the infrastructure, takes a view notes. She is not interested in implementing the rules, regulations and the system for delivering the teaching units, nor on getting prepared for the incidents and the changes that might occur. The teaching process is not monitored and controlled. She neither take part in further training nor reflect on improving the teaching class hour.
- Klara, another teacher who provides the necessary materials for creating the teaching units, does assessment of her methodology, uses the infrastructure, takes notes and implements the rules, regulations and the system for delivering the teaching unit and prepares for the incidents and the changes that might occur. The teaching process is monitored and controlled. She takes part in further training and reflects on improving the teaching class hour.

Table 3 introduces a tabular representation of the two case studies. The table includes the TeaM PAs with the corresponding CL (0-3) for each ML. Regarding the description given above, Ana is at ML 2 (Initial) while Klara at ML 5 (Optimizing). The corresponding PA associated to Ana should either reach CL 2 or 3 in order for Ana to move to the ML 3. When moving to ML 3, she should

continue keeping the previous PAs at CL 3 and also implement the new PA of the ML 3 to reach CL 3. When moving to ML 4, all the PA of ML 2 and 3 should have CL 3 and so on until she reach ML 5 when all the PAs of the TeaM model reached CL 3. On the other side, Klara, who is at ML 5, should keep the implementation of the PAs at CL 3 in order to maintain the optimal maturity level.

3 Outlook and Summary

An assessment of the teaching process is important not only to underline the commitment of optimal teachers but also to motivate other teachers to improve their skills and their teaching processes. Considering the fact that there is not one standard model for such an assessment, we aim at providing a single model, called TeaM model. The next steps are now to do a holistic study concerning the teaching process in primary, secondary and higher education.

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