DEVELOPMENT OF TIME MANAGEMENT AS GENERIC COMPETENCE IN AN ENGINEERING DEGREE: FIRST RESULTS

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Abstract

The experience has been implemented in two successive subjects in the third year of the Degree in Electronic Systems Engineering (University of Malaga) through the performance of the following activities: initial assessment of students' knowledge, outline a table of objectives at various time levels (first semester); keeping a record of the activities carried out during one week; attend a time management workshop; perform a strengths and weaknesses analysis; maintain a list of activities and an agenda for the rest of the subject; continue to deepen time management through the TRELLO© program free version (second semester); and a final evaluation of the development of the activity. The results show that there is a high dispersion of students' opinions initially. At the end of the second semester, a certain degree of improvement can be observed from the student's point of view. This experience was developed during the last academic year and is being carried out again with the same students in two fourth-year subjects with the idea that students improve their acquisition of this GC.

Keywords: Time management, scheduling, engineering, generic competences.

1. Introduction

Competencies represent a dynamic combination of knowledge, skills, abilities, and values. Promoting these competencies is the aim of the educational program, being assessed at different stages; the students obtain them. Learning outcomes are expressed in competencies (Menéndez Varela, 2009). The concern within the University of Malaga (UMA) for students to obtain learning outcomes associated with Transversal or Generic competencies (TC), as required by the degree reports themselves, is not new to different theses and research on the need to develop competencies during the university stage (OECD, 2003). A multitude of actions has been carried out in this sense over the last couple of decades, most of which have been characterized by the following:
- Total need for a development plan integrated with the degrees. Obtaining degrees does not provide any information on the TCs that graduates may have acquired.
- They are almost always extracurricular and voluntary, as they have yet to be considered in the curricular design, so there is no space for them, despite appearing in the degree reports.
- They are specific or sporadic actions without continuity over time, as they are associated with temporary projects and restricted to certain subjects.
- Being undervalued by the teachers themselves (considered of secondary importance or at least their teaching responsibility is limited to these specific outcomes).

The competencies that were selected to work on in this pilot project according to the model proposed by some researchers (Legault, 2012; Le Boterf, 2001), without implying that others are not of similar relevance, were effective communication (oral and written); autonomous learning and information management; and planning and time management. This article deals with the development of the latter.

2. Objectives

Good performance at university depends to a large extent on proper management and organization of study time, paying attention to the also necessary leisure time. Time management, knowing how to plan work, applying good techniques, being motivated and having confidence are essential. Effective study management allows for good results and avoids the dreaded moments of overwhelm (Allen, 2001; Marchena et al., 2008).

It is useful to have an agenda to check that the deadlines set out in the study plan are being met. The initial organization will improve as the course progresses and the pace of each subject, its level of difficulty, the final days of exams, etc. are known with greater precision. But time is a resource common to our work, our leisure and all the other private activities of our lives, including leisure time. Therefore, a good management of our individual time should include all our activities, professional or private, including breaks, leisure, free time, etc. This was the first level of study.

At a second level, the individual's time management requires the management of time-sharing by a group or team: the team leader should try to organize time-sharing, without prejudice to the individual team member's individual time management that is in line with time-sharing management.

Finally, at a more advanced level, project planning is a further step in time management, adding to time management the management of human and material resources, and the design of all the activities associated with the project.

So, three levels will be identified (Sodexo, 2018): individual time management, shared time management (working group), and management of human and material resources and design of the activities associated with the project. The results of the first level (individual) are detailed in this article.

3. Design and methodology

The training sequence (full course) for time management at the individual level includes self-knowledge of the learner's starting point, knowledge of tools (TRELLO©) and techniques, and application and exploitation. This training sequence consisted of the following activities:
- Self-assessment survey (García- Ros & Pérez-González, 2012)
- Creating a table of goals or objectives (Figure 1)
- Detailed activity log for one week
- Attendance at a training workshop
- Analysis of strengths and possible actions for improvement
- Development of planning (master list) and individual agenda (Figures 2 and 3)
- Self-assessment survey and comparison with the first survey.

Figure 1. Example of a target table.

	Long-term goals	Medium-term goals	Short-term goals
Academic/ labor	AL 1. Obtain the next six-year research period (14 months to go).	A1.1. Publish MTWDP article in IEEE journal (expected to be submitted in 3 months)	AL1.1.1. Obtain equations for "Extreme conditions"
			AL1.1.2.Obtain BER equations
			AL1.1.3.Verify BER equation
			AL1.1.4. Analyze graphs and draw conclusions
	AL.2. Improved subject results	AL2.1. Development of the pilot project in 3 GSEs with 3 TCs, with perception of improvement by students	AL2.1.1.Reply to reviewers and send
Personal	P1. Home maintenance	P1.1. Repair paint defects	
		P1.2.Faucet repair	P1.2.1.Shower repair
	P2. Miscellaneous	P2.1. Hiking trails	P2.1.1. Alcornocales Route (N.P)
			P2.1.2. Cortijo Hornillo Route (december)
		P2.2. Leisure	P2.2.1. Weekend in the Alpujarra with friends
			P2.2.2. Pending readings
			P2.2.3. Movies / theater pending
		P2.3. Others	P2.3. Christmas gifts

Figure 2. Example of the use of a master list.

GENERAL MASTER LIST				
Task	**Subtask** (only if decomposition by size is required)	**Associated objective or goal** (Although it is not mandatory, try to ensure that the tasks have an associated objective or goal from your list).	**Priority**	**Comments** (free field)
Arrange all risk insurance			Important	
Look at hiking boots		P2.1	No priority	The current ones are still good I can wait
Review GDI delivery		AL4	Important	For the return from Easter
Prepare IPN CV		AL5	Important and urgent	

Figure 3. Example of a weekly agenda.
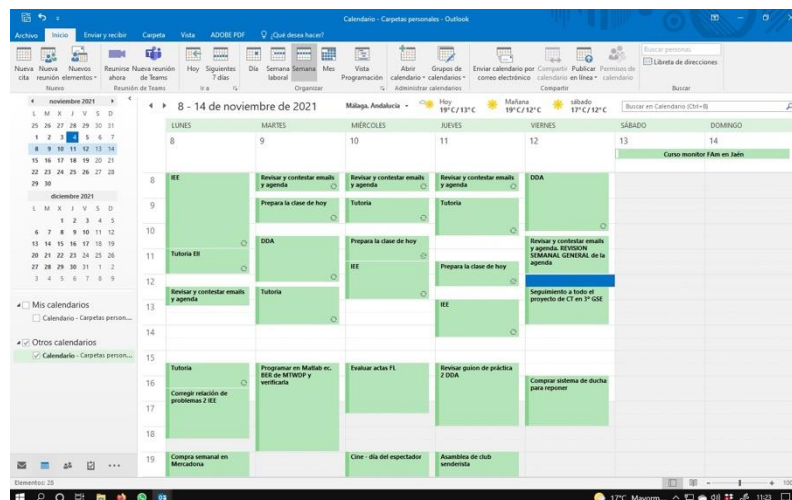
4. Results and conclusions

In general, the experience has been very satisfactory. Thanks to the research, it has been possible to integrate the transversal competencies (detailed in the introduction) within the subjects as opposed to the current model, in which they appeared complementary. Generally speaking, it can be concluded that the students have been quite participative. Obviously, it is important that students have some type of motivation for their participation that is reflected in their final mark for the subject.

Regarding competence in time management, the students think that fewer activities would be desirable to reduce the workload. The participation of the students has been uneven, despite having a small percentage in the final grade for participating in this experience. Of the participating students (65%), it can be concluded that 68% perceive that they have improved their competence despite a specific dispersion of opinions. Student participation can be divided into three groups: those who have not carried out the activities; others who have carried them out, but only for the sake of the file and without really paying attention; and a third group who have shown interest, regardless of what they have achieved.

Overall, the experience seems positive, although it is important to be careful not to overload the students with too many additional tasks that overwork them with labor by adding additional tasks to the ones they already have to do in the continuous assessment activities of the subject.

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