

# My Teaching Forest: Design of a Game-based Teacher Management System

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**Abstract:** Researchers have started to apply games to education recently. Teachers can use computers to understand and manage students' learning statuses. However, games are seldom designed and used for teachers, who play important roles in the learning process. This study therefore applies the concept of a management game for teachers using students' learning portfolios. Furthermore, this study creates an environment that teachers play the role of gardeners and who grow and take care of trees which represent students. Many of teachers have never shared game experiences to students which may cause the gap between students and teachers. This study aims to clear up the gap between students and teachers through game-based teacher management system, and also to create a game interface for teachers to visualize students' learning profiles and interact with students.

**Keywords:** game-based learning, learning portfolio

## 1. Introduction

An old Chinese saying goes, "It takes ten years to grow trees but a hundred years to rear people." The trees here are a metaphor of students, of whom their teachers need to take care. As if a gardener cultivates plants, a teacher needs to watch students' learning statuses, to perceive their mistakes, and to help them correct these mistakes. However, in a classroom without computers, it is difficult for teachers to take care of every student. For this reason, there is a need to develop a teacher management system, which can present students' learning statuses and, more importantly, personal learning portfolios.

Learning portfolios, a kind of method to evaluate students' learning processes and outcomes, allows teachers to understand what students pay and gain in the learning process [1]. Learning portfolios collect various data of students' learning activities, such as documents, photographs, interaction data, and so on [2]. In addition, learning portfolios can also stimulate teachers' reflection on teaching [3]. Therefore, a teacher management system should be established on the basis of students' learning portfolios. However, it is difficult for most teachers to understand the meanings of learning portfolios in a teacher management system because they may be not an expert to interpret the data.

On the other hand, games can provide an intuitive way to present learning portfolios. Furthermore, games can help teachers setup teaching goals without pressures. Hence, this study designs a game-based teacher management system, My Teaching Forest, which adopts the metaphor of trees. More specifically, the system is designed to collect and provide students' learning portfolios for teachers. Besides, teachers and students can share common learning experiences. Teachers can also manage students' learning statuses more effectively and efficiency with the system.

## 2. My Teaching Forest

This study applies the metaphor of trees to establish a game-based teacher management system. In the system, every tree represents a student. If a student performs well, his/her tree grows well; but if he/she performs badly, the tree grows badly. The system can transform complicated learning portfolios into simple and concrete objects. With the system, teachers can monitor students' learning statuses more easily.

Figure 1(a) shows several forests. Each one represents the whole condition of a class. Teachers can visit other teachers' forests by clicking them, which may show more details. By doing so, they exchange their experiences of managing a forest, or taking care of a class. For connecting the system with six-year elementary education, the authors change the old Chinese saying mentioned earlier into "It takes six years to grow trees but a hundred years to rear people."



Figure 1: My Teaching Forest

As shown in Figure 1(b), the system creates an environment that teachers play the role of gardeners, growing and taking care of trees which represent students. Every tree has five stages: seed, bud, seedling, growing and bloom to fruitage. In the process, trees may undergo some positive or negative situations depending on students' learning statuses.

If a student does not do assignment, his/her learning paces become slow, or his/her scores decrease, negative situations happen. The negative situations include insect pests or drought. These situations may remind the teacher to help the student. If students perform well on learning, teacher can use irrigation, sun shine and fertilization to help the tree grow up. Besides, teachers could interact with students and students could exchange their learning experiences.

My Teaching Forest provides the learning portfolio of every student to teachers. Each student have its' detail information, which shows what the student have learned and what assignments or practices undone. According to teachers' interface of every child's different learning pace and condition, teachers could assign different learning tasks to different students. Besides, Students could set how much learning tasks they want to reach in this week.

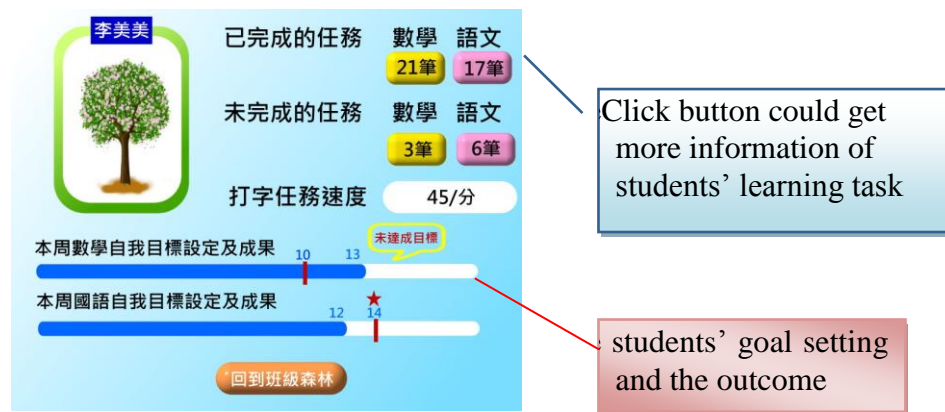


Figure3 : Personal learning information.

Individuals set their general criterion for academic tasks to be learning and improving, then as they monitor their performance and regulate it, this guide them toward the use of self-regulatory processes [5]. Specific goals (numbers of problems to complete) enhance learning and active self-evaluation than general goals [6]. Teachers also see every student's learning goal and whether achieve or not through our system. Thus, teacher could use this information to help students justify their goals or give some advices.

### 3. Conclusion

Teachers, many of whom have never shared the experiences of playing digital game, face a deep chasm when trying to communicate with this generation in their classroom population [7]. We hope to clear up the gap between students and teachers through our game-based interface for teachers. On the other hand, to make teachers not feel the teacher management system is just a kind of tools which shows some records, it could be efficient and joyful!

### Acknowledgements

The authors would like to thank the National Science Council of the Republic of China, Taiwan, for financial support (NSC 99-2511-S-008-002-MY3, NSC 100-2511-S-008-013-MY3, and NSC 100-2631-S-008-005-), and Research Center for Science and Technology for Learning, National Central University, Taiwan.

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