Assessment for learning is a process by which teachers seek to identify and diagnose learning problems, and provide quality feedback for students on how to improve their work. Owing to advancements in information technology, the Internet can play an important role in helping us to practice the concept of assessment for learning. The present paper reports on the development and implementation of Dr. Writing, an online diagnostic writing tool based on the General English Proficiency Test (GEPT), a criterion-referenced testing system specifically designed to assess the English proficiency of EFL learners in Taiwan. Dr. Writing has two major features: practice test and diagnostic feedback. In this study, writing performance data from more than 500 students were collected via the online diagnostic tool, which were coded and analyzed by error type to identify common errors of students at three different proficiency levels, roughly corresponding to CEFR A2 to B2. Furthermore, similarities and variations in error types among levels were compared. The results provide valuable insights into the strengths and weaknesses of Taiwanese EFL learners’ writing, which can inform writing instruction improvement. Based on the findings, individual remedial instruction delivered over the Internet or in person is being added as a new feature of Dr. Writing to construct a positive cycle in which learning can be enhanced through assessment and feedback. Further investigations into the utility of this online diagnostic tool for improving students’ writing ability are also discussed.