

Designing a learner-centred educational environment to achieve learner potential.

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Abstract

To deliver quality education universities have to devise a proper and effective learning and teaching strategy. The aim of this strategy should be to develop the potential of learners, which can only be achieved through the provision of a learner-centred environment. This study was conducted at the National College of Ireland and focussed exclusively on developing the potential of the learner. First year students were assessed and evaluated to ascertain their learning styles using Kolb Learning Style Inventory. Faculty received induction on various learning techniques. Online environments were created to adapt content to student learning styles. Detailed strategy, its effectiveness, on line learning environment and results obtained are discussed in this paper.

Introduction

The constructivist learning theory asserts that the learner constructs new knowledge through a process of relating new information to prior knowledge and experience. A learning-centred environment focus on individual learners and their needs as central to decisions about teaching and learning, understanding of the research on the learning process, how the process occurs, and how the learning process can be enhanced for all learners [1].

To create a learner centred environment Gwyer [2] raises the following points: Shared responsibility in student learning between the college and the student; The vision of the institution itself as a learner in that over time; The continual identification, development, testing, implementation, and assessment of a range of effective learning technologies including new applications of computer and information technology; Faculty whose primary responsibility is the design of learning methods and environments, with less emphasis on the traditional responsibility of instruction especially in the form of lecturing; Education that is tailored to the needs of individual students;

Theories of learning styles deal with how individuals like to learn something new such as the Kolb Learning Style Instrument[3] [4] and the index of learning [5].

Learner-centered environment

The mission of the National College of Ireland (NCI) is to provide access to education for all; create better opportunities for learners to succeed; and provide a centre of academic excellence in its chosen programmes.

The mission is underpinned by a learning and teaching strategy. The aim of this key strategy is to develop the potential of learners in a learner-centred education environment [7].

NCI have also developed a learner's charter [6] that is dedicated to providing the highest quality education that is accessible to all learners in a manner that meets their needs. This may be achieved by creating a dynamic, learner-centred learning environment that promotes individual potential.

Faculty environment

There was a four-phased induction programme for faculty. The **first** involved a presentation that covered the learning and teaching strategy and the motivation behind the strategy and the organisational project structure and expected outcomes. In the **second** phase faculty identified their own learning style using Kolb. The **third** phase involved giving faculty feedback on the students learning styles in their class.

In the fourth phase a Fulbright scholar visited the college for six weeks to raise the awareness in faculty in the design of learning methods and environments. The workshops conducted for this purpose were on: Active Learning; Learning Process; Formative student assessment; Teaching evaluation; Course design and Syllabus development for active learning and Grading.

Creating Student Awareness

For a competent learner is to find out their learning style. The first year induction programme contained a keynote address on learning and teaching. As part of the induction, students from first year BSc in Software Systems were given the Kolb Learning Style Inventory. Workshops on learning and teaching were identified and incorporated into the first year Business Communication module. The workshops in line with NCI's learning and teaching strategy addressed the areas of learning process, learning styles; student reflection and self assessment; and blended learning.

Use of Information Communication Technology

The institute developed a survey system that can give students immediate feedback on their Kolb learning style. The survey system also stores the learners learning styles, which can be used for research purposes. The Kolb Learning Style Inventory was administered in a small group setting to first year students on the BSc for Software Systems during the induction program in September 2003. Each student received a paper copy of the Kolb learning style with results placed into the online survey system.

Another ICT implementation was the development of a machine learning and data mining learning styles which is an adaptive and dynamic system that extracts the learning style and develops a learning environment to match the users learning style to assist students learning first aid. In order to adapt the content to suit the user, the system first established the users learning style. It uses machine learning to evaluate the users learning styles based on how the user reacts to the content supplied. It then predicts the most appropriate content based on their style. All user actions are recorded including their navigation and the time they spent in each section and the results of ongoing assessments. Every time new content is presented to the user the system evaluates the best content type and style. The user has the ability to change the content if it doesn't suit the user. This is implemented through the use of stretch text, hiding videos and images and allowing the user control over changing the navigation. In this particular application the learning style is based on the Index Of Learning Styles by Barbara Soloman and Richard Felder [5].

Results and Conclusions

The results described below are for descriptive purposes and represent the baseline data for first years on the BSc in Software systems.

Kolb Learning Style	
Converging	10 Students
Diverging	9 Students
Accomodating	8 Students
Assimilating	6 Students

The highest percentage of students in the BSc for Software Systems is convergers at 30%. Further work can now be carried out on the baseline by looking at variances in the base line when introduced to other dependent variables such as studio classroom, group work based on different Kolb type, group work based on the same Kolb type.

References

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