UNIVERSAL DESIGN FOR LEARNING - A NEW INCLUSIVE EDUCATION MODEL

Chi Cheng, Wu
deakinroy@gmail.com
Tainan University of Technology

Abstract

The paper aims to illustrate the application of universal design for learning (UDL) to improve teaching practice in inclusive classes. It describes the difficulties teachers may encounter in inclusive practice and discusses the implications of UDL for addressing these difficulties. The theoretical foundations of DDL are also presented. Current neuroscience indicates that learning involves three brain networks, affective, recognition and strategic networks, which are responsible for managing learners’ motivation, the access and comprehension of information, and the demonstration of skills and knowledge, respectively. Accordingly, multiple options of engagement, recognition, and action and expression are required to enhance students’ learning. Finally, with reference to UDL, curriculum adjustment in terms of goals, methods, materials and assessments is illustrated to fit students’ diverse needs.

Key words: curriculum, inclusive education, universal design for learning

INTRODUCTION

One significant agenda regarding education in the 21st century is inclusive education which requires all students should receive their education with the peers, regardless of their capabilities, disabilities, genders and cultural backgrounds (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2005). In order to achieving this goal, it is necessary to empower mainstream schools to address the varied needs of students (Peters, 2002). Universal design for learning has been suggested as an effective way for addressing different needs of students in inclusive contexts (Meyer, Rose & Gordon, 2014). Therefore, this article aims to discuss the application of universal design for learning (UDL) to improve inclusive educational practice. More specifically, it aims to describe the meaning of inclusive education and the difficulties mainstream schools might encounter in implementing inclusive education. Then, it discusses using UDL to contribute to the improvement of inclusive education. Finally, it illustrates the use of UDL in designing a curriculum that may fit the diverse needs of all students.

Inclusive education

According to United Nations Educational, Scientific and Cultural Organization (UNESCO), inclusion is defined as “a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education (UNESCO, 2005, p.13)”. In education, this definition contains two main concepts, increasing participation and reducing segregation. Increasing participation requires the efforts to diminish the barriers and engage all students to class activities. Over the past decades, many programs have been introduced with the aim to increase the participation of students in class who are vulnerable to exclusion. The inclusive education index is one significant example. The series of indexes are applied to examine the barriers impeding students’ engagements in learning, then resources are reorganized, physical environments are rearranged, and inclusive practice is improved (i.e., Ainscow, 1998; Norwich, Goodchild & Lloyd, 2001; Deppeler & Harvey, 2004). On the other hand, reducing
segregation means the shifting of students with disabilities from segregated educational settings to regular classes; that is, shifting a student from a special school to a regular class. Yet, the data show that there still a certain number of students who are segregated in special schools or classes (Wu, 2010).

In addition, inclusion is a dynamic process (Booth, 1996, 1999). Everyone might experience differential levels of participating barriers across different learning situations. It is no doubt that students with special educational needs (SEN) may be the most vulnerable to exclusion but, meanwhile, other students, such as those who come from different cultural backgrounds or are gifted might also experience some extent of barriers. The more flexible are the teaching pedagogies the more engaged students may be in class.

Unfortunately, a lack of professional knowledge and skills among regular teachers has been well documented as significant barriers to successfully include students with SEN. This practice could further lower teachers’ acceptant attitudes toward students with SEN. Therefore, strengthening the teachers’ knowledge and skills may increase their attitudes towards inclusion (Avramidis, Bayliss, and Burden, 2000).

Thomas (2004) argues that facilitating the development of inclusive education requires the shift of explaining students’ learning problems from children’s inner deficits to ecological factors, such as curriculum, pedagogies and school cultures. This is consistent with the spirit of UDL that curriculum disables children and thus it is essential to adjust learning goals, pedagogies, learning materials and assessments to improve inclusive education.

**Universal Design for Learning (UDL)**

The basic idea of UDL originally came from UD which is premised on the architectural concept that while designing a product or a device, the potential users should be considered as many as possible from the beginning. Retrofitting is usually costly and sometimes even impossible. One of the UD examples is a ramp. It does not merely benefit people with physical disability and it can benefit people with strollers and people with bikes. Other examples include captions that may assist people with hearing impairment to understand TV or a film, couples who go to bed at different time, and people for whom English is not their first language.

The concept of UD is applied in educational practice and is referred to as universal design for learning. It emphasizes that teachers need to design a curriculum which includes four main aspects: learning goals, learning materials, and teaching methods and assessments from the outset to fit the various needs of all students (Meyer, Rose & Gordon, 2014).

UDL is based on neuroscience research and stresses that learning involves three brain networks: affective network, recognition network and strategic network (Meyer, Rose & Gordon, 2014; Rose & Lalton, 2008). Affective network is all about the “why” of leaning and deals with the motivation of leaning. Recognition network, the “what” of learning, is responsible for the access and comprehension of information. Strategic network, the “how” of learning, is in charge of organizing and taking purposeful action to reach the goals. Further, Rose & Lalton (2008) indicate that students vary across the three brain networks while learning, which implies that teachers should use multiple means to engage students, help them perceive and understand information, and demonstrate their knowledge and skills.

Accordingly, as shown in Table 1 (CAST, 2011a,b), three principles and several aligned checkpoints are outlined by UDL to orient lesson planning which include multiple means of representation, multiple means of action and expression, and multiple means of engagement(Meyer, Rose & Gordon, 2014; Rose & Lalton, 2008). In terms of multiple means of representation, teachers are encouraged to present information in varied ways through audio, vision, tactile, enlarged texts, braille and so on. By the second principle, students are
required to demonstrate and communicate their ideas and skills in flexible ways, such as through the use of slideshows, oral presentation, writing, drama, dance and so on. The Scaffolding may be offered to increase students’ executive functions; that is, to set up learning goals, organize and apply strategies and manage resources, and monitor as well as adjust the learning process. In addition, the assistant tools are required to allow students with disabilities to freely navigate the environment. The third principle concerns with training children to become an active and spontaneous learners who are able to monitor and adjust their learning process, sustain their interests and overcome the difficulties they experience in the learning process. Teachers also need to instruct students to cope with psychological anxiety to maintain learning motivation and organize physical environment to avoid students’ distraction.

Curriculum

The curriculum within UDL contains four main aspects, goals, materials, methods and assessments. Learning goals should not be aligned with students’ methods to demonstrate their learning outcomes (Meyer, Rose & Gordon, 2014). For example, it is inappropriate to set up a goal as “writing down a report showing a growth process of plants”, but instead, it is better to ask students to “present the understanding about plants’ growth”. The adjusted goal enables students to seek alternative methods to demonstrate what they have learned, such as oral presentation, a video recording and pictures. In addition, teachers need to be deliberate in considering the salient and appropriate goals to balance the challenges and boredom.

Table 1 Universal Design for Learning Guidelines

<table>
<thead>
<tr>
<th>I. Provide Multiple Means of Representation</th>
<th>II. Provide Multiple Means of Action and Expression</th>
<th>III. Provide Multiple Means of Engagement</th>
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<tr>
<td>1. Provide options for perception</td>
<td>4. Provide options for physical action</td>
<td>7. Provide options for recruiting interest</td>
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<td>2.1 Offer ways of customizing the display of information</td>
<td>4.1 Vary the methods for response and navigation</td>
<td>7.1 Optimize individual choice and autonomy</td>
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<td>2.2 Offer alternatives for auditory information</td>
<td>4.2 Optimize access to tools and assistive technologies</td>
<td>7.2 Optimize relevance, value, and authenticity</td>
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<td>2.3 Offer alternatives for visual information</td>
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<td>7.3 Minimize threats and distractions</td>
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<tr>
<td>2. Provide options for language, mathematical expressions, and symbols</td>
<td>5. Provide options for expression and communication</td>
<td>8. Provide options for sustaining effort and persistence</td>
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<td>2.1 Clarify vocabulary and symbols</td>
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<td>2.2 Clarify syntax and structure</td>
<td>5.2 Use multiple tools for construction and composition</td>
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<td>5.3 Build fluencies with graduated levels of</td>
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In terms of materials, considering students see, hear, taste and touch things differently, it is better to present materials through various avenues, like audio, vision, smell, and tactile to enhance students’ perception and comprehension of information. In addition, relating the knowledge to authentic lives could motivate students’ interests and enhance the learning results.

With respect to methods, teachers should be flexible in adopting different strategies to enhance students’ learning efficiency, such as grouping, pairing, individual tutoring and self-study. In a learning process, different levels of support may be offered to support students’ comprehension of knowledge. For example, text to speech could be used to assist the word decoding process. In addition, relating new information to students’ prior knowledge is helpful in enhancing understanding of information.

Regarding assessments, given that students approach information differently, the options of assessments should be considered in order to accurately measure the learning results, such as oral tests, pencil paper tests, drama, drawing, and even singing. While assessing, some scaffolding might be provided to incite students’ knowledge and avoid underestimating a student’s learning outcomes. For example, teachers may provide calculators while assessing mathematical problem solving math problems or provide spelling assistance while assessing writing. Other considerations include the allowance of extra time to complete a test for some students, such as those with reading disabilities.

CONCLUSION
Inclusive education is a basic right of all students but, this right might be compromised due to teachers’ lack of expertise and unwelcoming attitudes. Empowering regular teachers is therefore essential to ensure the quality of inclusive education. UDL provides an effective framework for designing a curriculum, including goals, methods, materials, and assessments from the outset so that students’ diverse needs can be met.

BIBLIOGRAPHY


