Universal Design

Universal design involves the process of redisigning courses to benefit the greatest number of students:

- Universal Design

- Universal Design Process

- Universal Design Strategies

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1.Universal Design 廣義設計

There's a great deal of interest within higher education in general, and KU in particular, that we offer our full range of programs to all capable students. Further, it's not enough that we offer them, but we want very much to see that students succeed in those programs, regardless of background or identified needs.

Translation

高等教育通常都是備受重視的，特別是 KU，我們提供完整的學習方案給有能力的學生，再者，我們提供給他們的不足，但無論他們的背景或是個人需求是什麼，我們非常希望學生在這些學習方案能成功。

Most faculty members are familiar with letters provided by identified students that specify accommodations for their special needs. An emerging understanding about these accommodations is that many of them are valuable enhancements in the way we teach that would benefit all learners. Instead of seeing them as disruptions or details to be worried about, some faculty members have added these ways of teaching into their courses for all students,

resulting in greater success all around. This observation is the central idea in what's known as Universal Design.

Translation

多數教職員很熟悉學生使用的特定字句表現出他們所需適應的事，一個新的想法是，這些適應方法很多是有價值的增強力量可以使所有學生受益，與其將他們視為中斷的意外點或是太過擔心的細節，一些教職員直接加入這些教學方法到課程中，結果是出奇的好，這項觀察就是廣義設計的中心思想

Universal design (UD) is a concept embraced by various groups: architects, special educators, AARP, and technologists, to name a few. Ron Mace, who coined the term, defined it as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". The intent of UD is to simplify life for everyone. Making products, communications and the built environment usable at little or no extra cost benefits people of all ages and abilities. Some of the impetus for UD was to avoid unsightly add-on architectural fixes for inaccessible buildings, but in the long run people have come to see that enhanced access built into any activity makes life better for us all.

Translation

廣義設計　是個許多團隊接受的觀念，建築師,特殊教育者, AARP, 以及技術員, 像是 Ron Mace, who 這單辭的創造者，定義它是"產品跟環境的設計對人們來說很是可用的，往最有可能做延伸，不需要適應或是特別的設計" UD 的本意是為任何人見化生活，使產品、溝通、以及建構出的環境可以在很小或是沒有成本增加情況下使所有年齡層都受益，有些對 UD 的推動避免不雅觀的增加在建築物不明顯地方，但長期來講人們見到提升建造任何東西的通行讓生活更簡單了

An Instructive Example

We all know the expression "It's not rocket science," which suggests that rocket science is really hard to understand. Physics teachers have been engaged in decades of research to make it possible for more people to succeed in studying their field. Some of that concern came because certain categories of students were failing physics at much higher rates than other students. The idea was to see if there were different ways to teach physics, while still holding the same rigorous standards of achievement, that would bring all students up to comparable levels of success. For example, women and students of color had historically higher rates of failure in introductory physics (as much as six times higher) than the overall average for college students. Is there a way to teach physics that eliminates those differences?

Translation

我們都知道說"這不是火箭科學"的人，通常會認為火箭科學很難了解，物理老師已經花了幾十年研究去讓更多人們在學習這領域時成功，有些關切點出現因為有較高比例的學生在特定課題失敗，課題是怎樣以不同的方法去教物理，並且以同樣嚴格的完成標準，這樣一來得以讓學生得到較高水準的成就。例如，女人和有色人種在紀錄上而言較容易失敗於理論物理(六倍高於平均學生)，有方法在教物理是減少這樣情形嗎?

Many methods have been tried successfully, but one example is especially interesting. It's called Studio Physics, pioneered by Robert Beichner of North Carolina State University, and it's a very hands on, inductive approach to teaching. Instead of sitting in lecture halls taking notes, students work in groups at round tables solving problems with materials right in front of them. It is VERY carefully constructed, not just random hanging out, and the professor and TAs are available for questions, consultation, and mini-lectures. They use the SAME exams as the traditional lecture courses, not a substitute criterion for knowledge, and students in studio classes do as well as or better than students in conventional courses. Most importantly, failure rates among women and students of color were lowered such that they were now indistinguishable from the overall student population.

Translation

許多方法已經成功的試過了，但是一個特別例子很有趣，它叫做"物理工作室"，是由 North Carolina State University 的 Robert Beichner 發展出來的,這對教學且是非常實用且具引導性的。學生程小組在桌上解決當前實驗器材的問題而不是只在課堂上做筆記，它是"非常"小心的架構的，並非很簡單的教學，並且教授跟助教可以被問問題、諮詢、以及小型講解課程，他們在傳統的講課課程用這樣的考試方法，而不是對知識的取代性評分課程，而且在物理工作室的學生與傳統教學方式的學生做的一樣好，更重要的是，有色人種和女人的成績表現與整體平均沒有差異了。

It's a classic example of universal design; there was an access problem for some students, the whole course was redesigned, and everyone benefitted. This method is used in many places, ranging from highly selective MIT to community colleges. Beichner examined lots of evidence to see who benefitted the most from having this "accommodation" form of teaching designed to help students who could not do rocket science. Overall the group whose understanding of physics was improved the most were the top third of physics students at MIT. Their gains were the largest.

Translation

這對廣義設計是個很經典的例子，既存一個確定對特定學生的問題，整個課程重新設計，所有人都受益。這個方法在很多地方實際應用，從最高的 MIT 到社區大學。Beichner 以很多證據做實驗去了解誰會在"適應"這一塊受益最多，尤其是在火箭課程乏力的學生。在 MIT 裡面整體來說受益最大的是物理前三好的學生，他們得到為多收穫。

Summary

No one expects most KU teachers to undertake massive research or redesign projects like the one at NCSU. We do hope that you'll take advantage of the diverse learners you encounter to keep your methods as accessible as possible. This will include accommodating special needs for individual students, and perhaps asking yourself whether all students might learn better if you taught them as you teach/measure accommodated students.

Translation

沒有人要求多數 KU 老師像 NCSU 一樣，承諾大規模的研究或是重新設計課程，但我們希望你利用你遇到的廣大學生們去讓你的教學方法越來越確定，這包含了對個別學生或特殊需要的適應，並且或許捫心自問是否你對特別需要適應的學生做幫助時他們有學得好一點。

Your first responsibility is to make accommodations requested for individual students in your classes; that's federal law and common courtesy. Beyond that, however, each new student gives you an opportunity to ask about your own practices. Are there ways that you could enhance the learning for your students? We often most enjoy teaching honors students or other students who are most like we were during our education years; these are people who learn easily and quickly from abstract texts, who are prepared to learn from conceptual lectures, and whose intrinsic interest in learning requires little motivation. However, students who are more challenging to teach can motivate us to extend our teaching practices so that we can have a broader impact upon the entire student population.

Translation

你的首要責任是使那些需要的適應方法從個別學生提出來，那是通用的法則及正常的禮貌，除此之外，儘管每個學生讓你有機會去詢問自己的教學，有沒有特定方法可以讓你提生學生的學習？我們通常最喜歡那些模範生或是我們當年受教育時情形的學生，這些人通常可以在抽象的課程學很快，蹦且準備好學習概念性課程，並且他們獨特的學習興趣只需要一點點驅動力，但是，具教學挑戰性的學生可以激進我們去發展我們的教學讓我們對整個學生族群有更廣泛的影響力。

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2. THE UNIVERSAL DESIGN ROCESS 廣義設計的過程

1. Select the course, goals and overall content to which you wish to apply universal design.

   選擇課程，目標，及整體希望有關到希望應用 UD 的內容

2. Define the "universe," the group of students who may enroll in your course. Identify potential diversity within the group: gender, age, size, ethnicity/race, native language, and abilities to see, hear, move and manipulate objects, and learn.

   在參予課程的學生組別中定義"廣義"，確定組別內在多樣化的潛力，性別、年齡、身高體重、種族、母語、以及能夠去看、聽、移動及操作物體，以及學習

3. Apply UD and standards for good practice to the overall design of instruction (e.g., choose lecture, discussion, cases, online notes and models for delivering a specific topic to maximize learning for students with the wide variety of characteristics identified above).

   應用 UD 的標準在實際的課程指導設計(像是選擇課程、討論、線上重點、以及對特定主題的模式，用以上劇最大廣度的教學特性去最大化學生的學習)

4. Apply UD to specific instructional methods and curriculum materials (e.g., assure that the course Web site meets accessibility guidelines).

   應用 UD 特別指導方法及課程教材(例如；確定課程網站與導讀相符)

5. Develop processes to address accommodation needs of specific students with disabilities for whom the course design does not automatically provide access (e.g., refer students who need sign language interpreters to Disability Resources).

對特定殘疾學生給予需要的適應過程(例如；對需要語言翻譯的學生指引他們去"發展資源中心")

6. Monitor effectiveness of instruction by gathering feedback from student participation and learning; make modifications based on this feedback. Also include UD questions in the course evaluation and make modifications based on it (Burgstahler 2007).

    利用學生在課堂參與的回饋給得取有效忠告，利用這些回饋作課程調整，同時課程評量內也包含 UD 的問題並根據那些問題作調整

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3. UNIVERSAL DESIGN STRATEGIES 廣義設計的策略

1. *Class climate.* Reflect high values with respect to diversity and inclusiveness. Invite students to discuss accommodations or other learning needs.

    課程起伏。回應是高度肯定且包含廣度的，邀請學生討論適應情形或其他學習需要

2. *Access, usability and safety.* Ensure that activities, materials and equipment are usable by all students and that all student characteristics are addressed regarding safety. Develop safety procedures for all students; label equipment simply, in large print; repeat printed directions orally.

    確認、可用性、安全性
    確定活動、教材、設備對學生都是可用的,並且所有學生使用都安全,為所有學生演示安全程序,印很大一張並且口頭講解內容

3. *Delivery.* Vary methods of instruction. Use multiple modes to deliver content and engage students—lectures, collaborative learning, hands-on activities, etc.

傳達。改變指導方法，使用很多的模式去傳達內容並鼓勵學生，像是聽講課程、互動式學習，動手的活動…等諸如此類

4. *Information resources.* Ensure that course materials are accessible. Choose printed materials and prepare a syllabus early to allow students to start readings and assignments before class begins and to allow time to arrange alternate formats.

資訊來源
確定課程材料是可得的，選擇列出的教材內容並及早準備大綱讓學生閱讀並在課程前派作業讓他們有時間去選取具選擇性的內容

5. *Interaction.* Encourage interactions between students and instructor and among students; ensure that communication methods are accessible. Assign group work for which learners support each other and that values different skills and roles.

互動。鼓勵學生跟指導者間互動，確保溝通方法可行的，指派一場團隊合作，學生互相幫忙，並且內涵不同的技巧及角色

6. *Feedback.* Provide feedback regularly. Allow students to get feedback on parts of big projects before the final is due.

回饋。規則性的提供回饋，允許學生在期末到期前得取專題的回饋

7. *Assessment.* Regularly assess progress with multiple methods; adjust instruction accordingly.

確認。規則的以許多方法確認，調整指導方式

8. *Accommodation.* Know how to get materials in alternate formats, reschedule classrooms and arrange other accommodations for students with disabilities (Burgstahler 2007).

適應。知道如何在選擇性的格式上得到得取教材的方法，為殘疾的學生重新規畫課程及其他適應

方式