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# Fostering engagement through inclusive EAP course design in on-demand online learning

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**Abstract:** With the internationalization of universities, English for Academic Purposes (EAP) courses play an important role in preparing students to study content in English Medium Instruction (EMI). EAP courses typically consist of students from a variety of demographic and academic backgrounds. Particularly in on-demand online learning, it is not effective to use standard teaching methods and instructional designs to address the needs and characteristics of all students. Other than disability, differences among online learners can be broadly categorized into demographic, academic, cognitive, affective, self-regulatory, and motivational characteristics. While the last four have received attention in the literature, the first two need to be further investigated in the context of inclusive on-demand online pedagogy. In this pilot study, the author designed and implemented several on-demand online courses based on Universal Design for Learning (UDL). The purpose of this study was to examine the effectiveness of instructional design based on UDL in addressing learner inclusion and diversity in terms of need satisfaction. This pilot study employed a quantitative method using the post-course questionnaires completed by undergraduate students. It was found that the university's on-demand course design incorporating UDL was effective in addressing the diversity of learners in terms of gender and individual academic characteristics. The results suggest that a universal instructional design that provided learners with multiple means of expression, action/expression, and engagement could be used to proactively address curricular constraints and especially meet their autonomy and competency needs.

**Keywords:** Engagement, Inclusive pedagogy, English for Academic Purposes, Course design, On-demand online learning

## 1. Introduction

Given the growing importance of distance learning during and in the post-pandemic environment, it is important to adopt inclusive pedagogical designs and examine their impact on online learners' satisfaction, engagement, and performance across demographic and academic characteristics. Such studies are especially needed in contexts that traditionally experienced issues with inclusion and equity in education, including Japan (Hatano, 2021). Also, despite its image of a 'technology powerhouse', some of Japan's universities in recent years found that their online instructional designs should address the needs of all learners (Ismailov & Ono, 2021; Ismailov et al., 2021). Only a few published studies focused on the effects of instructional design on learners' needs satisfaction (e.g., Ismailov & Ono, 2021; Rivers, 2021).

While inclusive pedagogy implies a broad viewpoint of inclusion (Florian & Black-Hawkins, 2011), the literature tends to focus mostly on the inclusion of students with disabilities. Teaching practices that cater to the needs of exceptional students such as disabled or gifted are 'accommodative' and may not be fully inclusive unless other classroom diversities are addressed (Burgstahler, 2021). Recently, more authors began to use inclusion parameters other than disability, such as age, gender, ethnicity, academic background, and learning styles (Grier-Reed & Williams-Wengerd, 2018). Recognizing that everyone could learn better under the right conditions, inclusion in the pedagogical setting is described as a process in which educators 'respect and respond to human differences in ways that include learners in, rather than exclude them from, the daily life of the classroom' (Florian & Black-Hawkins, 2011: p. 814).

In inclusive distance education, Universal instructional design (UID) plays a key role and is used as an umbrella term to describe a pedagogical framework aimed at eliminating barriers to learning and responding to the needs of all learners when designing and delivering courses (Burgstahler, 2021). Universal designs are proactive because they benefit all students regardless of their characteristics, in contrast to providing accommodations for specific learners (Burgstahler, 2015; 2021). A similar framework is known as Differentiated Instruction (DI) in which teachers accept that students have (i) diverse learning readiness, (ii) diverse learning profiles, (iii) diverse interests, thus adapting their teaching, assessment, and grouping strategies accordingly (Tomlinson, 2014). Unlike DI, the Universal Design for Learning (UDL) provides detailed checkpoints for designing curricula that enable all learners to actively engage, feel included, and learn enthusiastically with peers in both online and physical classrooms (Griful-Freixenet et al., 2021). UDL can effectively inform the research of inclusive teaching because it provides evidence-based and highly specific guidance on how to design an online classroom that caters to diversity and inclusion.

## 2. Theoretical Framework

The growth of inclusive education in both conventional and online settings triggered the adoption of universal access frameworks initially created for architects, engineers, and designers. The original universal design (UD) consisted of seven principles, such as (1) equitable use, (2) flexibility in use, (3) simple and intuitive, (4) perceptible information, (5) tolerance for error, (6) low physical effort, and (7) size and space for approach and use. These principles laid the ground for the Universal Design in Education (UDE) to stress the need for "teaching and learning products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Burgstahler, 2021). Crucially, this framework goes beyond accessible design for people with disabilities to make all aspects of the educational experience more inclusive for all stakeholders regardless of gender, race and ethnicity, age, disability, and learning style (Burgstahler, 2015).

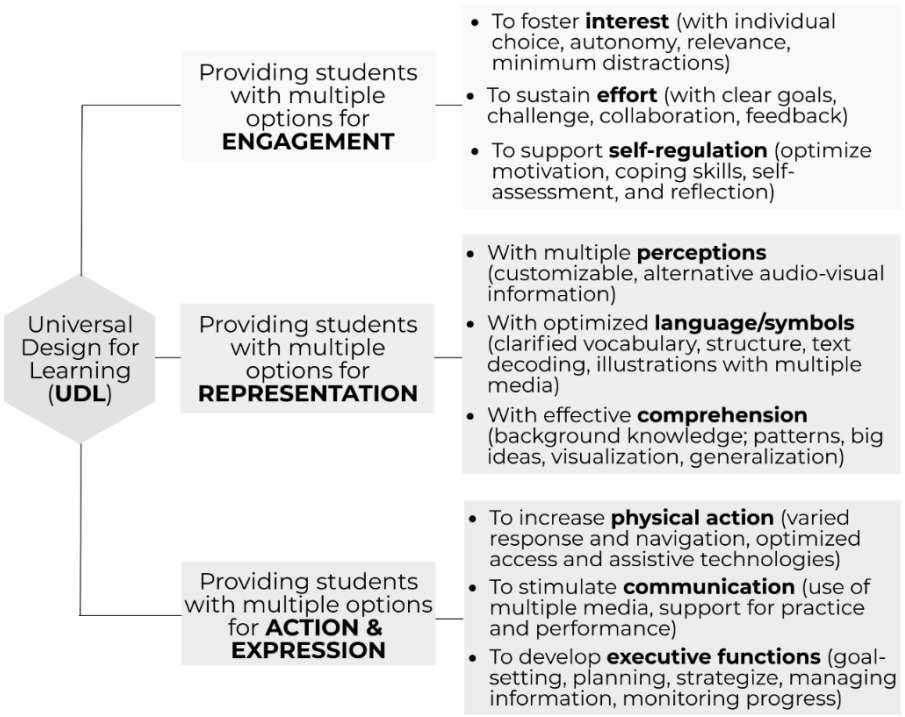


Figure 1. UDL Framework (adapted from CAST, 2018)

While UDE applications extended into many educational products (websites, software, textbooks) and physical environments (dormitories, classrooms, libraries, student services), the Center for Applied Special Technology (CAST, 2018) developed the Universal Design for Learning (UDL), as used especially for designing technology-mediated instruction (Figure 1). As 'a research-based set

of principles that together form a practical framework for using technology to maximize learning opportunities for every student' (Rose & Meyer, 2002), the UDL framework recommends presenting course content in multiple ways, providing students with various options for engagement, and facilitating their choices to demonstrate acquired knowledge and skills (Rao & Meo, 2016). In addition, drawing from research in neuroscience, the UDL framework helps teachers (i) set appropriate goals for every student, (ii) choose the teaching methods and materials that give every student optimal instructional support, and (iii) ensure the fair and accurate assessment of every student's progress (Rose & Meyer, 2002) by offering multiple options for classroom engagement, representation, and action and expression.

Self-determination theory (SDT) is a suitable psychological framework to assess how UDL-based teaching design could cater for learner inclusion and diversity and to examine engagement in on-demand online courses. By underscoring 'the basic human needs and the diversity of ways they are expressed and satisfied' (Ryan & Deci, 2017: ix), the theory explicitly supports inclusive teaching practices. Specifically, the theory focuses on social-contextual factors that foster or hinder students' thriving through the satisfaction of their basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2017). From SDT's perspective, all students are inherently prone toward learning, mastery, and connection with others, but these human tendencies are not spontaneous — they require nurturing conditions, such as need-supportive teaching behaviors, inclusive structure, and learning environments (Ryan & Deci, 2017; 2020). When pedagogical designs effectively satisfy these needs, students are more likely to be motivated to engage in learning tasks (Hsu et al., 2019; Chiu, 2021a; Chiu, 2021b).

The autonomy need is described by SDT as a sense of voluntariness that is supported by experiences of interest and value (intrinsic motivation), but hindered by experiences of control, punishment, and external reward (extrinsic motivation) (Ryan & Deci, 2017; 2020). A key factor that supports autonomy is the provision of choice through multiple learning modalities (Chiu & Hew, 2018; Chiu & Lim, 2020; Chiu, 2021c). The second need – competence – is a feeling of mastery and self-efficacy which are best satisfied within the well-structured pedagogical design that offers optimal challenges, positive feedback, and opportunities for growth (Ryan & Deci, 2017; 2020). Sense of competence diminishes in contexts in which challenges are too difficult, feedback is absent, or feelings of effectiveness are undermined by the perceived difficulty of learning tasks (Chiu et al, 2021; Ismailov & Ono, 2021). The third need from the SDT's perspective concerns relatedness, enhanced by the sense of belonging and social connection. By feeling connected to others and by being a significant member of social groups, learners experience inclusion and belonging, for instance by contributing to the group or learning with peers in formal and informal settings (Ryan & Deci, 2017; Chiu & Mok, 2017; Chiu et al, 2020; Chiu, 2021a).

## 3. Methods

This pilot study implemented two 15-week fully on-demand online courses based on the UDL framework and tested their effectiveness among university freshmen in a quasi-experimental setting. The author aimed to examine whether pedagogically inclusive on-demand pedagogic practices based on UDL could (i) cater to inclusion and diversity across genders (female/male) and academic fields (arts/science), and (ii) whether such instructions support learner engagement, performance, and needs satisfaction. Participants were freshmen students (n=225) attending English for academic purposes (EAP) online courses. One group of students attended the 'English reading skills' course and another one attended the 'English presentation skills.' Both courses typically enroll very diverse and mixed populations from arts and science majors. These courses are also diverse in terms of gender composition. The researcher obtained clearance from the Faculty Ethics Committee.

Both courses were taught to different groups of students for 15 weeks. Due to COVID19, all classes were redesigned to suit the online format. The institution requested to conduct classes on-demand to help freshmen adapt to university life, and support those experiencing problems with online learning. The courses were based on the Microsoft Teams Learning management system

(LMS). Pre-recorded video lectures, instructional materials, and weekly learning tasks for both courses were designed in line with the UDL guidelines

To assess students' satisfaction with three needs, the researcher used a previously validated instrument (Standage et al., 2005). The instrument originally developed to assess needs satisfaction in physical education showed acceptable internal reliability for measuring students' perceived autonomy (Cronbach's α=.80), competence (α=.87), and relatedness (α=.87). To fit the study's goals and learning context, all thirteen items were slightly modified. 7-scale Likert statements were used. Items related to perceived competence included three items, such as "I have some choice when choosing the topic and researching for my online presentation/reading tasks," "I have a say regarding what skills I want to improve when making my online presentation/doing reading assignments," and "I can decide which activities and tools I want to use when making my online presentation/ doing reading assignments." Items on perceived competence included five statements. Three example items are "I think I am pretty good at making online presentations/reading in English," "I am satisfied with my ability to make online presentations," "I feel pretty confident about making online presentations/doing reading tasks in English". Finally, items on perceived relatedness included five statements. Three example items are "With the other classmates in my online presentation class, I feel close," "With the other classmates in my online presentation class, I feel valued," "I'd like a chance to interact with my classmates more often".

## 4. Results

The analyses of covariance (ANOVAs) were conducted to assess the differences between two groups in post-teaching mean scores. The variables were internally reliable, as all the α values ranged from .74 to .91 (where good > .70), and had sufficiently normal distributions (i.e., skewness less than 2.3; kurtosis less than 7.0). Generally, behavioral, cognitive, and emotional engagement and perceived autonomy were above 5, while perceived competency and relatedness were around 4. All the variables met the assumption of homogeneity of variance, with Levene's test returning $p > .05$ for ANOVAs.

First, ANOVAs showed that there were no significant differences between male and female students in perceived autonomy, $F(1, 224) = .02$, $p = .88$, competency, $F(1, 224) = .90$, $p = .34$, and relatedness $F(1, 224) = .38$, $p = .54$, and behavioral $F(1, 224) = .15$, $p = .70$, emotional, $F(1, 224) = .05$, $p = .83$ and cognitive, $F(1, 224) = 1.84$, $p = .18$, engagement (H1). Secondly, the analyses also revealed that there were no significant differences between science and art students in perceived autonomy, $F(1, 224) = .09$, $p = .77$, competency, $F(1, 224) = .03$, $p = .85$, and relatedness $F(1, 224) = .06$, $p = .81$, and behavioral $F(1, 224) = .33$, $p = .57$, emotional, $F(1, 224) = .01$, $p = .91$ and cognitive, $F(1, 224) < .001$, $p = 1.00$, engagement (H2). Overall, the analyses suggested that students with different genders, and disciplinary backgrounds had the same level of needs satisfaction and engagement.

## 5. Discussion and Conclusions

The findings of the experiment confirmed the previous studies. First, both male and female students equally engaged in their learning in on-demand courses, and equally perceived the needs support from the course's universal design. Similarly, there were no differences between science and art students in their needs satisfaction and engagement in the course learning activities. These findings are aligned with SDT-based studies that suggested that needs satisfaction can stimulate student engagement in the course (Chiu, 2021a, Chiu, 2021b). From SDT's perspective, all students irrespective of their diversity are intrinsically inclined toward learning and mastery, but these human tendencies necessitate fostering conditions, such as need-supportive teaching behaviors, inclusive design, and learning environments (Ryan & Deci, 2017; 2020). When teaching designs satisfy these needs, students are more likely to be motivated to engage in learning tasks (Hew & Cheung, 2014; Hsu et al.,

2019; Chiu, 2021a; Ismailov 2021a; 2021b). This study's findings also find strong support in UDL-based studies (Fidalgo & Thormann, 2017; Herrara Nieves et al., 2019; Rao et al., 2016).

This paper also sought to make a theoretical contribution to understanding UDL from the perspective of self-determination theory. The idea that offering multiple options for classroom engagement, representation, and action and expression – the three core principles of UDL – can make learning inclusive, has its origins in cognitive neuroscience (Burgstahler, 2021; Rose & Meyer, 2002). Surprisingly, to date, only a few studies have looked at UDL through the prism of social psychology, such as SDT. The results of the present study showed that many of UDL's guidelines are strongly supported by SDT's needs satisfaction framework.

The main suggestion for instructional designers is that the principles of UDL should not be approached as a 'one-size-fits-all framework.' UDL is indeed effective in catering to diversity by reducing physical, cognitive, intellectual, and organizational barriers, yet not all learners may necessarily see these conditions as 'barriers.' This study's caveat is that 'generalized UDL' may still have different impacts on different learners in diverse disciplinary contexts (Ismailov & Laurier, 2021). To optimize the UDL-based on-demand online courses, designers and instructors should first carefully examine relevant factors, including external contexts that demand changes in the course, the course's existing features, learner characteristics and needs, and the nature and requirements of the course content, activities, and assessments.

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