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# Research Techniques for Educational Technology: Online Language Learning

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# Introduction

- Educational technology can refer to the use of technological tools to enhance teaching, learning, and educational management.

# Introduction

- Technological tools:
  - interactive whiteboards,
  - online courses,
  - gamified learning platforms, and
  - educational apps.

# Introduction

- EdTech benefits:
  - making learning more accessible,
  - increase learning engagement, and
  - enhancing learning effectiveness.
  - transforming traditional classrooms into a dynamic, innovative space

# Introduction

- Technological innovation and the prevalence of the internet connection have increased the popularity of online education and distance learning (Toader et al., 2021).
- This mobile and technological integration has rendered a facilitation to educational access.
- Teaching-learning processes have been more student-centered, innovative, and flexible.

# Introduction

- Online language learning: synchronous / asynchronous modes
- Benefits:
  - immediate or multimodal oral feedback,
  - group interactions and communication,
  - mutual scaffoldings among learners,
  - expressing and reflecting upon viewpoints, and
  - access to online materials at one's own pace (Godwin-Jones, 2006; Huang & Hung, 2013; Hung, 2016; Kim & Kim, 2021; Walker & White, 2013).

# Introduction

- Online language learning can be offered through either synchronous or asynchronous modes and provides learners with a plethora of benefits including immediate or multimodal oral feedback, group interactions and communication, mutual scaffoldings among learners, expressing and reflecting upon viewpoints, and access to online materials at one's own pace (Godwin-Jones, 2006; Huang & Hung, 2013; Hung, 2016; Kim & Kim, 2021; Walker & White, 2013).

# Introduction

- University students majoring in either language education or other fields often conduct two major types of activities during their online learning process:
  - constructive activities (e.g., brainstorming, writing reflections, and discussion)
  - observational activities (e.g., watching video demonstrations and browsing online pages) (Binali et al., 2021).

# Introduction

- However, interactions with online learning media and resources during learning activities may induce a relatively high cognitive load and complexity (Chang & Yang, 2010).
- Hence, it is vital that learners be capable of applying appropriate coping strategies to help them concentrate and manage their cognitive ability during their online learning process (Bjork et al., 2013; Cho & Heron, 2015; Garrison, 2003; Tsai et al., 2018).

# Introduction

- In traditional learning environments, learners can reach for support from instructors and peers in a convenient manner whenever they encounter difficulties in their lessons.
- However, such instructional and interpersonal supports are delivered differently in online learning environments.

# Comparing to traditional classrooms,

- online learners have
  - fewer opportunities to both synchronously interact with other students
  - receive timely assistance from their instructors (Broadbent et al., 2020; Li & Zheng, 2018).
  - are able to flexibly manage learning processes and paces in response to their personal demands

# Introduction

- Teachers become more supporters
  - provide guidance and
  - organize suitable and engaging contents and pedagogies (vanOostveen et al., 2019).

# Introduction

- This requires learners to be self-regulatory, self-efficacious, and self-motivated in order to manage themselves and reach achievement (Alemayehu & Chen, 2021; Wong et al., 2021).
- In this case, self-regulation, motivation, and relative skills are dominant keys, for learners, to sustain their engagement and pursuits to success (Li et al., 2018; Wang & Zhan, 2020; Zimmerman, 2011).

# Self-regulation

- is a key to motivation in learning since it prompts individuals to plan, assess, and manage their behaviors and cognition in order to attain desirable goals (Gazzaniga et al., 2010; Pintrich & De Groot, 1990; Zimmerman, 2000).
- is generally considered as a multidimensional construct involving cognitive, metacognitive, behavioral, and motivational aspects (Schunk & Zimmerman, 2012; Zimmerman, 1990; Zimmerman & Schunk, 2011).

# Self-regulated students

- can effectively execute cognitive and behavioral strategies, leading to their achievement.
- Regulating abilities are dependent on pedagogies and resources presented through the learning process (Fernandez-Rio et al., 2017).

# Factors facilitating or undermining

- an individual's level of self-regulation and learning process could be:
  - cognition,
  - motivation,
  - behaviors, and
  - environmental contexts (Agina et al., 2011; Dembo et al., 2006; Pintrich, 2000; Zimmerman, 1983).

# Self-regulation

- consists of four phases:
  - forethought, planning and activation,
  - monitoring,
  - control, and
  - reaction and reflection.

# The four phases of self-regulation

- require that one should use multiple strategies so as to be motivationally, cognitively and metacognitively, and behaviorally and contextually regulated.

# Some strategies

- being applied to self-regulated learning include:
  - goal setting,
  - help seeking,
  - self-control and monitoring,
  - time and environment management (Yossatorn et al., 2022).

# Self-regulation

- Self-regulatory strategies are effective ways to help learners manage their online language learning and to direct themselves towards expected goals (Su et al., 2018; Zheng et al., 2017)

# Self-regulation

- Self-regulatory strategies are essential to learning with high flexibility and out-of-class preparation (Zimmerman & Labuhn, 2012).
- Self-regulation is a cyclically interactional process inducing strategic, cognitive, emotional, and behavioral alterations (Pintrich & De Groot, 1990).

# Self-regulation

- Learners who are adept at using self-regulatory strategies set achievable goals and supportive environment for their learning, approach learning activities with high confidences and self-esteem (Cho & Heron, 2015; Fida et al., 2016; Sanaie et al., 2019).

# Self-regulation

- The application of self-regulated strategies to students' online learning may be highly dependent on several factors:
  - the current state of learners' conceptual understanding,
  - the general character of knowledge,
  - the nature of learning, and
  - students' motivational beliefs (Burin et al., 2020; Carr, 2010; Tsai, 2001; Wang & Zhan, 2020).

# Self-regulation

- enables learners to control, become aware, assess, and solve problematic situations throughout their learning process confidently, thereby exhibiting better performance and achieving higher success in online learning.

# The use of SRL strategies in online learning

- would be indispensable to students for becoming more behaviorally adaptive to exploit and apply relevant benefits from multimodal resources and online information to their learning.

# Motivational beliefs

- are defined as important psychological elements that encourage learners to be cognitively engaged in a learning task, remain effortful, invest more time, and persist in their learning and academic pursuits (Bandura, 1986; Wigfield et al., 2015; Metallidou & Vlachou 2010; Pintrich, 2003; Wong, et al., 2021; Wu et al., 2019; Zimmerman, 2011).

# Motivational beliefs

- self-efficacy,
- expectations, and
- task values.

# Motivational beliefs

- have a propensity to
  - facilitate individuals' use of self-regulated strategies during their learning process (Artino & McCoach, 2008; Lee et al., 2020),
  - enhance quality of individuals' task performance (Eccles, 2005; Wong et al., 2021) and
  - promote positive learning behaviors and academic performance (Bandura, 1986; Trautwein et al., 2012; Wigfield & Eccles, 2000; Zheng et al., 2017).

# Task value and academic self-efficacy

- are crucial psychological factors directing students enrolling in practice-based educational programs that require participation in theoretical learning and clinical practice experience (e.g., medical and nursing students) to use self-regulated learning strategies in order to achieve academic tasks, clinical practice, and personal needs (Chen et al., 2019; Mäenpää et al., 2018).

# Task value

- has widely been discussed within a motivational theory known as expectancy-value theory (EVT) (Arens et al., 2019).
- EVT posits that expectancy of success and subjective task values are the two primary elements influencing an individual's motivation to achieve a learning goal.

# Expectancy of success

- refers to a conviction students have to perform an activity whereas task values are the extent to which students perceive and value a task (Wigfield & Cambria, 2010).
- If an individual believes that a task is achievable, but is not worth performing, little effort will be invested.
- On the contrary, an individual tends to engage in another task with high success expectations if the task is deemed valuable, but unattainable.

# Expectancy and value beliefs

- are theoretically distinctive, but are empirically correlated.
- Students who highly believe that a task is attainable, they are also inclined to highly value the task.

# Expectancy and value beliefs

- Expectancy beliefs relate to actual performance while
- task values are associated with choices and achievements (Eccles & Wigfield, 2002).

# Task value

- Task value explains students’ engagement in a task, serving as rationales in deciding if such tasks should be approached and succeeded.
- It pertains to the task features that influence students' engagement, whether appealing, personally meaningful, helpful to current or future goals, and effortfully unworthy (Eccles et al., 1983).

# Task value

- is a multifaceted construct, consisting of four different components:
  - intrinsic value,
  - attainment value,
  - utility value, and
  - cost.

# Intrinsic value

- pertains to an enjoyment or interest derived from performing a task.

# Attainment value

- value is defined as the extent to which a task is important to students in order to invest an effort into it.
- Students are inclined to engage in a task when it is regarded as important and to some extent reflects the student's identity (Eccles, 2005, 2007).

# Utility value

- concerns the usefulness in performing a task for fulfilling present or future goals.

# Cost

- reflects the negative consequences relevant to the task engagement, such as failure apprehension.

# Task value

- Students are inclined to persistently engage in learning and reach higher academic achievement when they perceive that the consequential outcomes are useful and the learning process is enjoyable (Wigfield & Eccles, 2000).
- They also tend to exhibit better performance and more enjoyment towards achievable tasks by their capabilities (Guo et al., 2017).

# Academic self-efficacy

- Self-efficacy is a personal belief in one's ability in completing specific tasks.
- Self-efficacy has a strong effect on how people approach and invest time and effort in procedural persistence (Pajares & Miller, 1994).

# Academic self-efficacy

- solving a task,
- engaging in a learning activity, or
- behaving in a desirable direction and level (Bandura, 1988; Hasan et al., 2014).

# Students with high self-efficacy

- tend to be
  - more effortful,
  - resilient to setbacks, and
  - persistent on their academic tasks (Yossatorn et al., 2022).

# Students with high self-efficacy

- are also less susceptible to threats,
- cope with challenging tasks, and
- use more SRL strategies to achieve desirable academic outcomes, such as improved scores and communicative skills (Yossatorn et al., 2022)

# Academic self-efficacy

- is defined as a subjective conviction in one's own ability to attain satisfactory academic goals in an educational environment (Klassen, 2002; Klassen, Usher, & Bong, 2010; Usher & Pajares, 2006, 2009).

# Individuals with high self-efficacy

- tend to be highly self-regulated and achieve favorable academic outcomes.
- Meanwhile, individuals with low self-efficacy are more likely to confront academic impediments due to the self-regulatory inability.

# Literature review

- Recent research (Bo, 2016; Cai & Lynch, 2017) revealed that students tended to invest more effort in studying materials that benefitted their learning goals, such as improving performance and results in examinations.
- On the other hand, students are likely to disengage from tasks that appear unachievable or highly demanding (Bai et al., 2020: Eccles & Wigfield, 2020).

# Literature review

- Self-regulation, motivation, and self-efficacy have been found to be interactively associated, to a certain extent, reflecting the influence of self-efficacy and its antecedents (Fraizier et al., 2021; Lee et al., 2020).

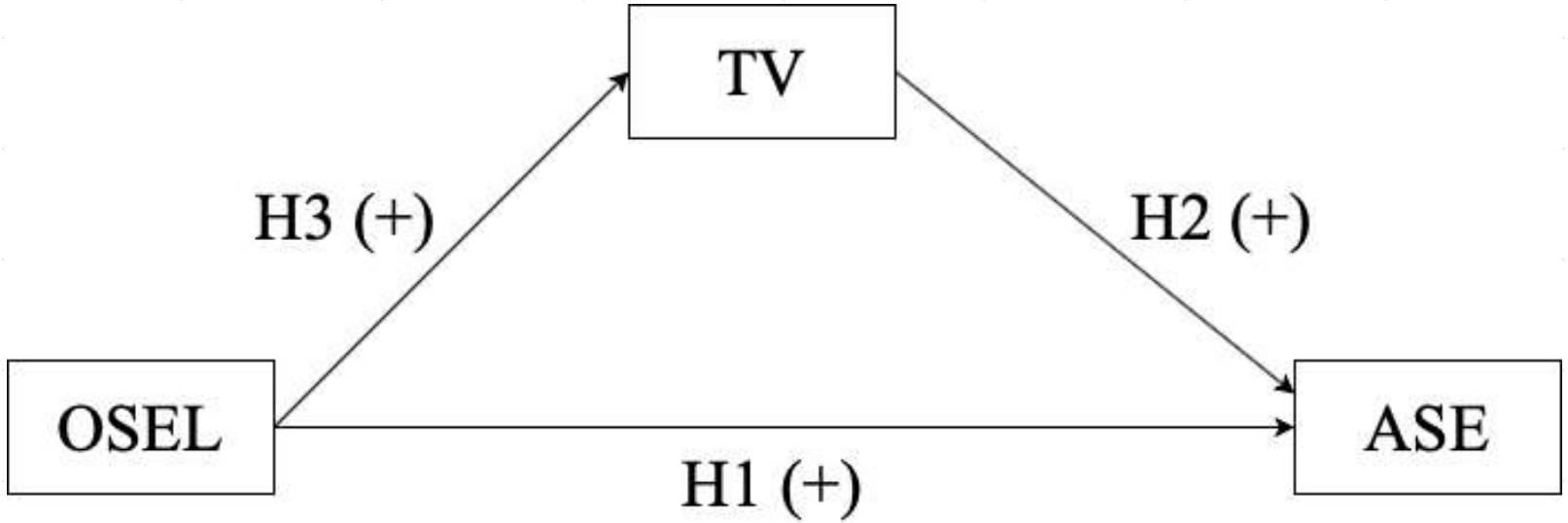
# Research purposes

- This study aimed at exploring the relationships between the use of online self-regulation strategies, task value, and English self-efficacy among undergraduate students at a public university in Thailand.
- Further, the study sought to identify the mediating role of task value on the relationship between online self-regulated English learning and academic self-efficacy.

# Research hypotheses

- H1: Online self-regulated English learning is positively correlated to academic self-efficacy.
- H2: Task value is positively correlated to academic self-efficacy.
- H3: Online self-regulated English learning is positively correlated to task value, thus mediates the relationship between online English self-regulated learning and academic self-efficacy.

# Research hypotheses




*Notes:*
*OSEL (Online Self-regulated English Learning)*
*TV (Task Value)*
*ASE (Academic Self-Efficacy)*

# Participants and procedures

- A total of 478 nursing students from a public university in the central part of Thailand participated.
- A majority of them were female 88% with the age ranging from 18 to 49 years.
- Their online learning experiences ranged from 1 to 3 semesters.

# Instruments

- The online self-regulation of EFL students - Su et al. (2018).
- Task value - Trautwein et al. (2012).
- Academic self-efficacy of students' learning English - Zheng et al. (2017).
- Each questionnaire item was rated on a 5-point Likert scale, ranging from (1) strongly disagree to (5) strongly agree.

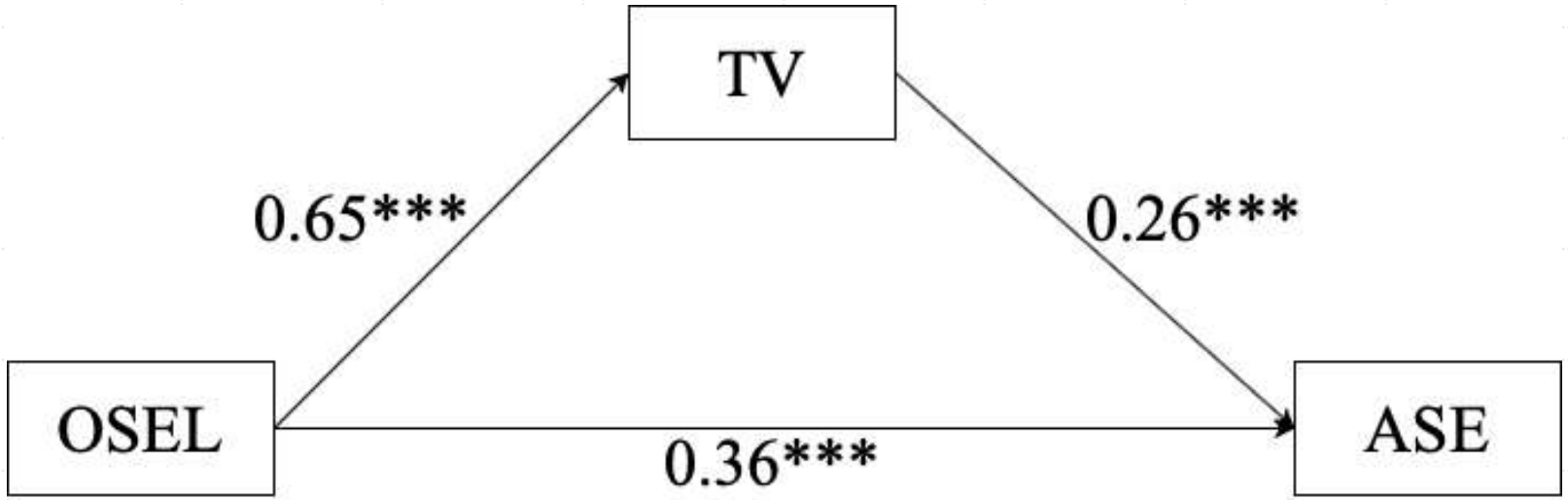
# Data collection

- Online survey was used to collect the data.
- Prior to the survey administration, the participants were informed about research purposes and asked to indicate their participatory agreement in a consent form.
- The completion of the survey occupied approximately 25 minutes.

# Data analysis

- Descriptive statistics were derived from the analysis of the demographic data.
- A two-step structural equation modeling (SEM) was further conducted to address the research questions and test the proposed hypotheses.
- The SEM procedures include confirmatory factory analysis (CFA), investigating the internal consistency and validity of the latent variables based on indicators, and structural equation modeling (SEM) to observe the path coefficients of the proposed model.

# Results




*Notes:*
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# The relationship between online self-regulated English learning and academic self-efficacy

- OSEL had a significant positive association with ASE. The result implies that an increase of OSEL will elevate the levels of ASE.
- Students who are adept at regulating themselves in online English learning are inclined to be confident in their competency to excel and reach the achievement.

# The relationship between online self-regulated English learning and academic self-efficacy

- This finding is congruent with prior research manifesting that learners who employ learning strategies, such as appropriately managing time and acquired skills, are confident in strategic usage and goal achievement (Heo et al., 2021; Lee et al., 2020; Su et al., 2018; Zimmerman & Schunk, 2011).

# The relationship between online self-regulated English learning and academic self-efficacy

- The obtained results highlight the importance of self-regulation in consolidating academic self-efficacy to become successful learners in learning English online.
- Further, the finding extends the understanding of the relationship between self-regulation and academic self-efficacy in the online language learning context.

# The relationship between task value and academic self-efficacy

- Task value was positively influential to academic self-efficacy suggesting that students who enjoy and regard online English learning and relative tasks valuable to their personal and professional development tend to exhibit higher confidence in attaining the online English tasks and course.
- The results also supported the postulation in prior research on the association between task value and self-efficacy (e.g., Guo et al., 2017; Wu et al., 2019), manifesting the importance of task values in bolstering confidence and persistence in performing tasks and pursuing further courses or degrees.

# The relationship between task value and academic self-efficacy

- The reason could be that engaging in online English tasks helped them improve their knowledge, fulfill the course requirement, handle with academic contents throughout their program, or implement personal and professional aspiration, such as traveling and working abroad.

# The relationship between online self-regulated English learning and task value

- The results showed that OSEL positively influenced TV. Students who used self-regulatory strategies tended to regard online English learning tasks enjoyable, important to academic and professional improvements, and temporally worthy.
- The findings are partially consistent with previous research (Csizér & Tankó, 2015) manifesting a direct correlation between self-regulatory usage and motivation in language learning.

# The relationship between online self-regulated English learning and task value

- The students in this study had possessed experience in performing activities and progressing through online learning lessons and courses. The previous successful experience and the familiarity in self-regulatory usage could facilitate the students to approach and succeed their current online English tasks and learning, reflecting a sense of mastery or achievement (Bandura, 1997; Wilby, 2020).
- The self-regulatory usage, along with successful experiences, might encourage the students to assign values to the learning process.

**The mediating role of task value on the relationship between online self-regulated English learning and academic self-efficacy**

- Task value was found to mediate the relationship between self-regulation and academic self-efficacy.
- The result implies that students who apply self-regulated strategies in their learning process approach tasks with enjoyment, and regard them personally helpful and worth investing time and efforts.

**The mediating role of task value on the relationship between online self-regulated English learning and academic self-efficacy**

- The finding extends the existing literature regarding the mediating role of task value in online learning (Li & Zheng, 2018).
- Desirable experiences from possessing and exercising learning strategies bolstered students' self-efficacy in engaging and attaining success in online courses (Bradley et al., 2017).

# Conclusion

- The results of the study highlight the importance of self-regulation in keeping students motivated to approach language tasks and become successful in online English language courses.
- It, therefore, yields practical implications for educational instructors and institutions in terms of enhancing students' self-regulation, especially those in nursing programs.

# Conclusion

- Educational instructors can help learners plan their goals at the very outset of the course.
- Learners should also be granted access to feedback and assistance as the course progresses.
- Instructional guidance on self-regulation should be initially provided to learners, along with practical opportunities, to help increase familiarity and further increase their academic self-efficacy.

# Conclusion

- Promoting such factors found in the current structural model can then enhance the students' confidence and enable them to seek for and apply self-regulatory strategies to control themselves and environments to manage challenges and approach desirable goals.

# Limitations

- First, the data were collected from Thai students at a public medical university, indicating a group specification, restricting a generalization of the findings.
- Further investigation may be needed to warrant whether the results are generalizable to other contexts or population.

# Limitations

- Second, the data in the study were derived from self-reported responses which were prone to be biased and unable to determine the causal relationships among examined variables.
- Other methods, such as interviews and observation, should be incorporated into additional studies to obtain deeper insights into how self-regulatory skills are actually practiced and impact students' self-efficacy and task values in online learning.

# Limitations

- Third, the current study examined the relationship between online self-regulation and academic self-efficacy in English language learning in general. Self-efficacy in language learning can be varied according to tasks and contexts (Bandura, 1997; Su et al., 2018).
- Future research should be conducted to warrant whether the results could be yielded similarly or differently.

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# Thank you very much