Motivating Online Language Learners:
From Theory to Design Strategies
(提高在线语言学习动机: 从理论到策略)

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Abstract: The development of online education has posed new opportunities to language learning, especially for learning a second language such as Chinese. However, challenges also exist. One of the major concerns is motivating students to learn in an isolated and independent learning environment. Research in online education has revealed that successful online learning depends mostly on learners' motivation and their ability to manage the learning process. However, motivation in online Chinese learning settings is an understudied area in the extant literature. This paper introduces the self-determination theory (SDT) as an appropriate theoretical framework for addressing learning and motivation challenges in online Chinese learning. This paper also explores the design of online Chinese learning environments from the perspective of SDT. It begins with a brief overview of the motivation issues in online Chinese learning and follows with the discussion of the application of the SDT theoretical framework in an online Chinese learning context. In addition, it reviews the findings in the literature of online Chinese learning and proposes instructional design strategies that can promote and support student motivation.

摘要：在线教育的发展为中文语言学习带来的新的机遇和挑战。如何激发并保持学生学习动机是在线学习中的一个重要问题之一。在线教育研究表明，学生的学习动机和管理学习过程的能力是影响在线学习的重要因素。然而，目前关于在线中文学习动机的研究尚少。本文以自我决定学习理论为指导框架，讨论如何从学习环境设计的角度来支持中文在线学习动机的发展。本文先概述了中文在线学习中的学习动机问题，然后介绍了自我决定理论在中文学习环境中的应用，并基于目前文献研究提出相关的教学设计策略以支持学生学习动机的发展。

Keywords: Online Chinese learning, Motivation, Self-determination theory, Design strategies

关键词：中文在线教学、动机、自我决定论、教学设计策略

1. Current motivation issues in online Chinese learning

Motivation, as a necessary precursor for second language acquisition, has been recognized as an essential factor that influences engagement and achievement in online language learning (Ushida, 2013; White, 2017). However, motivation research has not been explored extensively in the field of Chinese learning (Wen & Piao, 2020). Current motivational issues in online Chinese learning have called for urgent attention to improving the quantity and quality of motivation.

Being part of the broader spectrum of distance language learning, online Chinese learning has inherited the motivational challenges in online language education. Generally speaking, students in online language courses exhibited low level of motivation (Lin et al., 2017), reported negative perceptions to online learning environments (Oliver et al., 2012), and had a lower online course pass rate compared to students learning other subjects online (Freidhoff, 2020). Another major concern is the quality of language learning motivation. While some students displayed genuine interest in the Chinese language and culture, some other students were reluctant to participate. They registered for online Chinese courses because of curriculum requirements, or were forced to do so by social-imposed and self-imposed pressures (Wen, 2011). Comanaru and Noels (2009) investigated the reason for Chinese learning in a study at a university. Most of the participants reported that they learned Chinese because of extrinsic reasons or external forces or, such as "achieving course credit", "obtaining lucrative employment", or "feeling of guilt and shame about disappointing others" (p.148).

Besides, students' motivation to engage in online Chinese classes was hard to maintain. The unique orthographic and pronunciation system makes Chinese language learning much more complicated than learning other languages (Guo & Möllering, 2016; Ruan et al., 2015). Students may expect a Chinese course to be less demanding at first and later realize it requires more commitment than expected (Sun, 2014; Wen, 1997). When learners have a low level of competence, they are less likely to exert effort to overcome the difficulties (Bandura, 1989); consequently, they may not continue to learn when the course fails to address their language competence development.

Distance Chinese learning entails additional challenges to the retention of the motivation. The lack of learner support has been identified as a major factor that exacerbates the issue, including inadequate support for students' agentic role in managing online studies (Wang & Qi, 2018; White, 2017) and pursuing diverse Chinese learning goals (White et al., 2020); incompatible online design for diverse Chinese competence levels (Stickler & Shi, 2014; Zhang, 2014); lack of immediate feedback and time for language practice (Qian & McCormick, 2014); limited interactions that result in low retention and the feeling of isolation (White, 2017). Insufficient support for students' need will inevitably inhibit their motivation to communicate and participate in the course, ultimately leading to inadequate development of language competency (White, 2017). Since effective online learning relies on the degree to which a learner accommodates the context into their own learning experience, rather than just the delivery of the course materials (White, 2015), creating a supportive and motivating environment should be the primary concern in online language course design.

Past design effort in Computer Assisted Language Learning (CALL) has explored the online language design from a technology-driven approach, affordance-drive approaches to pedagogical-driven approach (Colpaert, 2006). However, less attention has been paid to the motivational support. In attempting to facilitate the language learning process online, Colpaert (2010) suggested the design method should "draw from various disciplines involved, such as pedagogy, SLA, linguistics, software engineering, and psychology" (p.272). He pointed out that self-determination theory will be instrumental in guiding the design of CALL to identify students' personal characteristics. Draw upon the learner-centered emphasis, we will discuss motivational strategies for designing the online Chinese learning environment from the psychological perspective of self-determination theory.

2. SDT as an appropriate framework to address motivation in online language learning

There have been several influential frameworks to examine motivation in the language learning field, including the Motivational Orientation Theory (Gardner, 2010; Gardner et al., 1985), the L2 Motivational Self System (Dörnyei, 2009), and the Self-determination Theory (SDT; Ryan & Deci, 2000). Among them, SDT places emphasis on the quality of motivation. The focus of SDT specifically fits the needs of language teaching. As noted by Noels et al. (2019), one important question in language teaching is how we can support our learners to find language learning "intrinsically enjoyable", to "find meaning and satisfaction in the process", and to view language learning as "a personally relevant activity in itself" (p.95). In other words, the goal of language teaching is to help language learners develop high-quality motivation so that they can become more autonomous in learning without external forces (McEown & Oga-Baldwin, 2019). McEown and Oga-Baldwin (2019) have called for the implementation of SDT in formal language education and suggested that teachers who employ the SDT principles in the language classroom can positively influence students' motivation, well-being, and achievement.

SDT theorizes that motivation is situated on a continuum ranging from one end, which is fully autonomous to the other end that is fully controlled (see Figure 1). It highlights the dynamic motivation process underneath. It indicates that the quality of motivation can be improved through the satisfaction of basic psychological needs, which act as nutrients for "ongoing psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 229). It not only depicts what motivation is, but also indicates ways to optimize the environment for the growth of motivation.

2.1 Autonomous motivation and controlled motivation

The central concept of SDT theory is the distinction between autonomous and controlled motivation (Ryan & Deci, 2000, 2017), which can be applied to evaluate the quality of motivation (Ratelle et al., 2007; Xie et al., 2020). Autonomous motivation is the force that emanates from the learner. When autonomous, learners engage in behavior that is self-determined. They may feel that they have the interest to participate in the activity,

or may have a sense of self-endorsement that recognizes the behavior as important. The behavior is supported by the innate needs for being a capable human agent managing life and making connections with the environment. Autonomous motivation includes both intrinsic and extrinsic forms of motivation, which are, intrinsic motivation, integrated regulation, and identified regulation. *Intrinsic motivation* is the most autonomous type of motivation which leads a person to pursue an activity based solely on interest and pleasure. Language learners with intrinsic motivation participate in language learning with curiosity, creativity, and enthusiasm (Comanaru & Noels, 2009). They learn the language not because of external forces, such as getting a job, but because of the pure enjoyment they experience during the learning process. *Integrated regulation* refers to the fullest internalized regulation of motivation. It occurs when learners integrate the behaviors into personal values and beliefs. In this situation, a heritage learner identifies themselves as the one that can master the heritage language, not just because of the importance of making ancestry connections. A somewhat less internalized regulation of motivation, while still self-determined, is *identified regulation*. Identified regulation is observed when one identifies the importance of the activity and see the activity as personally meaningful. At this point, learners carry out the activity because they relate the importance to their personal goals. For example, a heritage language learner who feels that heritage language is important to their ancestry connections will choose to learn the heritage language even if he does not enjoy the learning process.

On the other hand, behaviors characterized by controlled motivation are found in those learners who feel pressured or compelled to perform. Individuals with controlled motivation engage in behavior for external reasons. Learners act in ways that are incongruent to the person's sense of self. Since they are not genuinely willing to engage, they are only likely to maintain the behavior when the external source is present. A less controlled type of motivation is *introjected regulation.* It refers to behaviors that are performed to avoid feeling ashamed or guilty. It involves ego-enhancement, in which learners demonstrate their ability or avoid failure. The most controlled type of motivation is *external regulation*, meaning that the actions solely rely on the self-alien forces, such as getting rewards or avoiding punishment. If the external reinforcement is taken away, learners will not have the incentive to continue engagement. The difference between these two forms of regulation lies in the degree of independence when the external force is absent. While external regulation cannot support the behavior to continue, introjected regulation can still drive the actions due to its internal pressure (Ryan & Deci, 2017).

Contrasting to all autonomous and controlled motivation is Amotivation. Amotivation refers to the situation where learners are not motivated at all; they may not act or act without intent. They find the activity valueless, or do not feel competent, or anticipate undesired outcomes (Ryan & Deci, 2000). Consequently, they have no reason to perform the activity and will probably quit as soon as possible.

Amotivation	Extrinsic Motivation				Intrinsic Motivation
No Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
- Lack of perceived competence - Lack of value - High perceived cost	- External rewards and punishments - Compliance - Reactance	- Ego-Involvement - Internal rewards and punishments - Focus on approval from self and others	- Personal importance - Conscious valuing - Self-endorsement - Goal driven	- Congruence with self - Personal values - Commitment	- Interest - Enjoyment - Inherent satisfaction
"I do not value learning Chinese"	*"My parents forced me to learn Chinese, I don't have any choice"*	*"I want people to think I am good at Chinese"*	*"I want to use Chinese in the future"*	*"I think I am the one who can master Chinese"*	*"I enjoy Chinese learning"*

Figure 1: The SDT continuum for online Chinese learning,
adapted from McEown & Oga-Baldwin, 2019; Ryan & Deci, 2000

Many studies have shown that motivation is changing all the time (Xie et al., 2006; Xie & Ke, 2011); it can be shifted from controlled to autonomous when students internalize the value activity (Oga-Baldwin & Fryer, 2018; Wen & Piao, 2020; Xie et al., 2022). The goal of the online language classroom is to foster the development of autonomous motivation so that students can learn without external control from teachers and more importantly, act on their will to interact with others. Students with adaptive motivation will be able to healthily sustain the language acquisition (Csizér & Dörnyei, 2005; Noels et al., 2000; Oga-Baldwin et al., 2017; Ushioda & Dörnyei, 2009; Winke, 2013), use more learning strategies (MacIntyre & Noels, 1996), have a good attitude toward language learning(Csizér & Dörnyei, 2005; Winke, 2013), possess a higher level of willingness to communicate in the target language (MacIntyre et al., 2001; Yashima, 2002), and achieve desirable L2 competency (McEown & Oga-Baldwin, 2019; Noels et al., 2000; Pae, 2008).

2.2 Three basic human psychological needs

Ryan and Deci (2017) suggested that when the social environment supports the learner's sense of autonomy, competence and relatedness, autonomous motivation will be best fostered. They conceptualize the three factors as essential human psychological needs, which are vital for improving human autonomous functioning regardless of time and context. The three basic human needs must be satisfied to sustain psychological interest, development, and wellness.

Autonomy refers to the feeling of something being volitional and congruent with one's interests and values. It is different from the concept of independence, as an independent individual can act in a way that is contrary to their volition. Thereby, autonomy emphasizes that an individual pursues the activity of their own will, without being pressured by external forces. *Competence* is often considered as a core factor in motivated actions (Bandura, 1989; Harter, 2012). It relates to the individual's perception

of their ability to perform the activity. It should be noted that competence is easily thwarted. The growth of efficacy may wane in the contexts that are with pervasive challenges, negative feedback, and criticism. *Relatedness* concerns the need to feel connected, secured, and cared for by others. Specifically, it pertains to the sense of being a significant member of the social groups. Needs-frustrating predicts motivational depletion while needs-satisfying optimizes motivation and nourishes human well-being. For example, a language learner will feel internally motivated when they perceive language learning as an integral part of themselves, feel welcomed by the target language community, and receive supportive interactions in the language learning process. The perspective of the three basic psychological needs has offered a lens for us to analyze the roots of motivational issues underneath.

Autonomy need and online Chinese learning. White et al. (2020) found that students were more involved when they were able to co-construct the online classroom with their Chinese teachers. While we recognize the independent role of online students, we shall notice that they also act as active agents to control and construct the learning experience in response to the online learning activities (Garrison, 2000). White (2005) explored the "learner-context interface" online language learning theory from the perspective of learners and placed learners' construction of response to the context as the core. Learners did not strictly follow what had been delivered, but instead actively constructed their own learning experience based on the environment affordances (Stickler & Shi, 2014). She also suggested that the pre-determined course design was not responsive to the diverse perspectives the learners had. Students are diversified in their goal of learning Chinese and their personal life experiences. Some students learn Chinese because of their interest in culture and the desire to become part of the Chinese-speaking cultural community; some others, being more pragmatic, value the utility perspective of Chinese language for travelling, job seeking, or communicating with people who speak Chinese (Noels et al., 2000; Sun, 2014; Wen & Piao, 2020). Therefore, using pre-packaged or over-controlling teaching content was not sufficient to embrace various viewpoints from diverse learners (Lamb, 2017).

Competence need and online Chinese learning. From past studies, students displayed great frustration when they perceived less support for their competence. Generally, students have found limited speaking opportunities as a challenge in an online setting (Qian & McCormick, 2014). They were more motivated when they were able to practice the language they learned and engaged in the negotiation of meaning (Sun, 2014). Specifically, students' competence levels varied, they showed various needs for adjustments to the learning content to fit their competency. Qian and McCormick (2014) examined a forum discussion in online Chinese learning. They found only advanced learners appreciated the activities that required them to freely express their experiences and feelings since beginners have less knowledge of complex structures. Another issue related to language competence is the overuse of corrective feedback. While corrective feedback have been used as a common technique to improve language competency, researchers have found students listed over-corrective feedback as one of the demotivating factors when learning a language (Lamb, 2017), for example, frequently correcting the tone and pronunciation of Chinese characters (Cai & Zhu, 2012).

Relatedness need and online Chinese learning. Inadequate connectivity may cause an alienating effect for students. Past studies found students felt motivated when they were connected with the community of learners as they were able to communicate and collaborate with other students, sharing their learning experiences and asking for help (Cai & Zhu, 2012; Qian & McCormick, 2014). Another issue that relates to relatedness is the need for response time in an online setting. Spontaneous speaking in online Chinese setting has been found to be the most difficult skill to acquire (Stickler & Shi, 2013). They need more time to prepare for communication. Students found themselves unsecure or embarrassed to learn when teachers displayed less patience and forced them to complete activities when they were not ready (Mkize & Chisoni, 2015).

SDT can serve as an appropriate theoretical framework that addresses the aforementioned motivational issues in online Chinese learning. Firstly, SDT can be applied as a guidance to the course design as it places the optimization of the environment design at the core. Secondly, since it posits the satisfaction of autonomy, competence, and relatedness as determinants of motivation, it has explained the reason why the lack of needs support has inhibited the development of motivation. Thirdly, it offers possible solutions to the improvement of quantity and quality of motivation from the perspective of needs satisfaction. It not only emphasizes the dialectical relationship between social context and motivation, but also specifies the necessary conditions in the social context for psychological growth. Hence, in order to address students' motivational issues in online Chinese learning, providing contextual support for the three psychological need is key.

3. Designing a motivating online Chinese language learning environment

The following sections will introduce contextual support strategies to enhance students' autonomous motivation from the perspective of the satisfaction of fundamental psychological needs. While these motivation-supportive strategies can be applied to both online and traditional classroom settings, we have contextualized the discussion within the scope of the online setting. We will explain the theories behind each strategy first and review related examples in previous online learning literature and practice.

3.1 Autonomy-supportive strategies

Ryan and Deci (2017) place "the feeling of volitional, congruent, and integrated" (p.10) as the core of autonomy. Learners are engaged wholeheartedly since they participate in the activity because of their choice. Ryan and Deci distinguish "autonomy" from "independence" as people can be either autonomously independent or be independent but doing activities that are contrary to their volition. In an online Chinese learning environment, the need for autonomy has become even more central to the online learning process as students are the ones who manage their studies most of the time. Students will be engaged in the self-endorsed activity that is personally meaningful and aligns with their own interests, while they exert self-regulation in the distance learning process.

Strategy 1 for Autonomy Support: Providing choices and limiting task imposition. Language instruction is prescriptive in that it sets the learning objectives and guidelines a

learner needs to follow (Little, 2007). However, when all the activities are externally imposed, learners tend to believe they have less ability to control the circumstances. If learners see no value or interest in the activity, they will only pursue it reluctantly. Nevertheless, if they perceive a "Bi-local" control of the events, that is, the perception of both personal locus of control and external control, they will be more responsible for the activity and interact with external resources (E. Lee & Hannafin, 2016). This concept of "Bi-local" control resonates with the collaborative control and learner involvement in White's (2005) and Garrison's (2000) online learning theory.

Course design in online language learning, while being structured, can still offer flexible options for learning activities. Instructors can incorporate learners' interests when designing the syllabus. Instead of having students learn what is provided, the instructor may ask students to decide what they are most interested in learning or add other contents that are not in the prescriptive syllabus. Ankan and Bakla(2011) designed online blogging activities in an online language learning class. They asked the students to brainstorm topics and activities that could be the blogging content without providing pre-determined blogging topics. Students found the blogging experience enjoyable and improved their ownership of learning as they had some control of the exercise. Similarly, Lee (2016) echoed that advanced students in an online language class felt more motivated when they were offered freedom for topic discussion.

Besides, instructors can offer a list of resources and activities to stimulate students' interests and ask them to work on the ones they prefer. Students tend to put in more time and effort when a choice is provided. Prince (2011) adopted a fiction reading in an online language class. To facilitate the support for choices, learners can choose from the accompanying reading activities and have easy access to the answers. He also suggested that students may only adopt an attitude of compliance when the design offered no choices but only compulsory tasks. Take learning Chinese characters as an example, students who prefer writing to typing will find penmanship more interesting; some other students who prioritize typing over writing may become more engaged when a typing exercise is offered. Instead of asking all students to print out the character writing sheet to write and submit, students can also choose to do the penmanship on the characters-learning app, practice typing characters in the class social group (e.g., Discussion board, WeChat), or with other social simulation tools (e.g., TextingStory[1]).

In a presentative project, students can have some choices of the tools they can use and the content they would like to present. The instructor provides a tool list on the assignment page and related tutorials. The technology tools for presentation may include Google slide, Explain Everything, Talking Photos, StoryBird (making an e-book), Pixton (making comics), etc. As the class's focus is not on technology but language learning, the course instructor will need to provide a tool list that students can find it easy to start.

Strategy 2 for Autonomy Support: Creating a personal meaningful environment. Facilitating an individual's volition experience does not necessarily equal unlimited

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[1] https://textingstory.com/

freedom without constraints or demands (Benson, 2007). Students will perceive autonomy when they truly endorse the options available.

To facilitate endorsement, an autonomy-supportive environment should *provide meaningful rationales* that are related to their goals of learning (Alm, 2006; L. Lee, 2016; Martin et al., 2018; Reeve et al., 2004). This process supports not only autonomous motivation, but also the internalization of controlled motivation. Before asking the student to do the task, the instructor needs to explain why the activity is important to their learning and how it relates to language proficiency. Instead of using controlling languages in the tasks given, such as "you must", instructors may provide more information to arouse learners' awareness of the meaning of the task. For example, if the instructor asks students to read the text aloud and record their own voice by saying, "read the text and record", students may wonder why they need to make a recording. They may complete the task just for sake of completion. Even when they move their lips, it does not mean that they are engaged in the learning process. An informational version of the instruction will allow learners to consider the task value, and endorse the goal of instruction to their internal value system, such as "Chinese is a tonal language. Different tones indicate different meanings. The read-aloud technique will help you to improve the accuracy of the pronunciation. Listen to the demonstration in the VoiceThread first, read after the instructor, and pay attention to the pronunciation and tone. You can choose to practice on your own or to record your pronunciation on the VoiceThread. You will also receive feedback after your post the recording."

Students in the same class have different goals of Chinese learning, course designers need to *empathize with students' learning perspective* in the activity (Reeve & Jang, 2006). The task will be more intriguing if it invites students' input to class learning content. Figure 2 is a discussion activity in a synchronous session. The instructor asked students to draw their house during the asynchronous study and initiated a discussion about the house layout in the live session. Besides a presentative activity talking about the house, the instructor also adopted student-generated materials as the class learning materials for communication. White et al. (2020) also echoed the importance of students' input in a study on one-to-one online Chinese synchronous sessions. Students found the class useful when they activated their role of agents to change the focus of class from a pre-determined teaching plan to the discussion of their own life experiences. They suggested that personalization can be tailored from learner interests, current situations, past experiences and future plans. Emphasizing students' input to the class does not necessarily mean the teaching content will turn into casual topics or be distracted by students' questions. Instead, skilled teachers will adjust the teaching plan to address students' interests by using communicative discourse to stimulate the practice.

Figure 2: A synchronous activity in an intermediate Chinese class – designed by Yun Zhao

Strategy 3 for Autonomy Support: Encouraging self-regulation. Autonomy support includes more than the availability of choice, but also supports for self-regulation (Ryan and Deci, 2017). Self-regulation is essential to the success of online learning. It is a mindful process whereby students strategically monitor and control their own motivation, cognition, metacognition, behavior, and environment to achieve their academic goals (Pintrich & Zusho, 2007; Winne & Hadwin, 1998; Zimmerman, 2011). The cyclical process of planning, monitoring, controlling, and evaluating plays an essential role in the learning process.

Bang et al. (2014) adopted a design of a learning navigation map in an online English class to help learners plan and monitor their study progress. Setting up a clear course overview makes it clear to learners how to get started and find essential course components. Learners reported that they feel more in control of the course when the course structure was clearly stated and organized, as they were able to plan their learning schedules accordingly (Lee, 2016).

Many studies have shown that specific self-regulation strategies training, such as goal-setting, self-monitoring, have positively influenced academic achievements (Zimmerman, 2011; Brunstein & Glaser, 2011). Murphy (2005) integrated self-regulation training in an online French class. Students participated in a skill audit that listed the skills they needed to complete the assignment and identified their strengths and weaknesses. They completed a reflection sheet to summarize the feedback they received, the strategies they used, and identified questions they would like to discuss with the online tutors. In online language classes, Andrade and Bunker (2009) applied the reflection journal design and self-selected self-regulation training that covered multiple dimensions, including motivation, methods of learning, use of time, the physical and social environment. Teachers responded to students' reflective journals and provided feedback on their learning performance, strategies, and goal-setting. They reported that students found themselves becoming more responsible for study after the class.

In addition, supporting self-regulatory use of language-learning strategies is a crucial approach to the development of language competence. Learning strategy training can be explored from the skill-based areas (e.g., listening) and language subsystems (e.g., vocabulary and grammar). Each focus will entail a repertoire of specific strategies. For

example, prediction is used mostly in interpretive activities, as opposed to presentational activities; a grouping strategy is often used for internalization, such as memorizing new phrases. Instructors may integrate strategy training when students are doing a task. Figure 3 presents an example of the instruction in asynchronous study of a novice Chinese class. Figure 4 shows the slides captured in a synchronous session of an AP Chinese class. The instructor designed a speed-reading class activity and introduced corresponding strategies for the reading task. The instructor integrated association strategies to help students retrieve and organize the words before proceeding to a writing task.

Your Task:

Step 1: Based on the core concept of "**不舒服**", please create a semantic word concept map to help you associate this key phrase with other vocabulary and sentence structures we have discussed. You are encouraged to incorporate a graphic organizer as you prefer or employ the example shown below while illustrating the connections you are going to make. Your map should include no less than 20 related Chinese words. (3 points)

You can use Bubble.us(free version) or other technical tools you know to do the graphic organizer. Then make a screen capture and submit it as an attachment.

Step 2: Please sort your map into specific categories based on the property and function of the words. Please see the examples in the image below. (3 points)

Step 3: Write a story or a dialogue with the words in your own map, at least 90 Chinese characters. (4 points)

Figure 3: An asynchronous activity in novice Chinese class – designed by Xiaoying Yuan

Figure 4: A synchronous activity in AP Chinese class – designed by Yu Chen

3.2 Competence-supportive strategies

It is worth noting that perceived competence stems from the activity that is autonomously endorsed by the learner. SDT highlighted "a distinction between competence at activities that originate from the self and those that are governed by introjects or by external demands" (Ryan & Deci, 2017, p.96). It denotes that even when the external environment has designed abundant language learning activities, learners do not necessarily perceive support of their competence. Learners will internalize a sense of competence when they feel autonomy is satisfied.

Research in competence needs satisfaction confirmed the positive link between perceived competence and autonomous motivations. Perceived competence was often found to be related to intrinsic motivation and identified regulation. Students who felt more competent during the language classroom were more self-determined. Joe et al. (2017) claimed that competence needs satisfaction predicted learners' willingness to communicate and L2 achievement directly. In terms of the impact on the learning process, Tanaka (2017) affirmed the decisive role of competence in predicting self-determined motivation for vocabulary learning. They identified autonomous motivation as a positive predictor for vocabulary size and improved learners' value belief and interest in vocabulary learning. However, students with lower perceived competence failed to recognize available strategies and felt helpless, which led to amotivation. They were easy to fall into a vicious cycle of low competence-low motivation since they were less able to regulate their affective states and experiment with different strategies when experiencing low motivation. Mills et al. (2007) extended the research of competence to their ability to use strategies. Students who perceived themselves as capable of using effective learning strategies to monitor their L2 learning process tended to experience academic success. Besides the use of strategies in the task, MacIntyre and Serroul (2015) also stressed that students 'motivation was based on students' perception of task difficulty and necessary vocabulary for task completion as well as grammar-related issues. In a web-based environment, researchers found computer self-efficacy and internet self-efficacy was positively relates to learning performance and learning satisfaction (Joo et al., 2000; Tsai & Tsai, 2003).

Strategy 1 for Competence Support: Balancing the design of input and output. First and foremost, an online language course needs to address how course activities support language competence development. We can draw some valuable perspectives from the design evaluation framework for computer-assisted language learning proposed by Chapelle (2001) and Jamieson et al. (2004). The evaluation principles have integrated principles in second language acquisition (SLA) theories: instruction in online language learning shall "(1) draw learner's attention to the specific aspects of linguistic input, (2) engage learners in interactions requiring negotiation and co-construction of meaning (3) prompt learners to produce comprehensible output." (Jamieson et al., 2004, p. 397). It aligns with the second language acquisition process of "Input-intake-development system-Output" (Ellis, 1997; VanPatten, 1996). Instructors will need to balance input, interaction, and output opportunities when designing online language courses. Input is necessary for acquisition to take place. However, not all language resources can be utilized by the learner. To increase the amount and quality of intake, the instructor needs to guide the learner to "notice" (Schmidt, 1990, 2010) the input and to raise consciousness (Smith, 1997). Input materials should be "rich" but not tedious, and need to be manipulated to be "comprehensible" (Krashen, 1982, 1985) by modification or other contextual technique, or through "structured input activities" (VanPatten, 1996). Moreover, according to the Interaction Hypothesis, Long (1985) suggested that acquisition is fostered when learners negotiate meaning through interaction. He argued that interaction adjustment, which includes paraphrasing, repeating, clarifying, modifying, or simplifying, can improve comprehension and lead to the acquisition. Learners need opportunities to produce comprehensible output (Swain, 1985). It pushes the learners to produce language beyond their current levels. When they are struggling to make themselves understood by others,

they will notice their linguistic ability, try to express meanings, and consciously reflect the output.

To address the insufficient opportunities for input process and output production in online setting, some online language classrooms have applied a flipped class model (Li & Jiang, 2017; Tseng et al., 2016). Students were asked to watch lecturing videos and take notes before the live session. Tseng (2016) reported the number of notes taken and the degree of engagement in video watching for input elaboration prior to live sessions were positively related to learning achievements. Li and Jiang (2016) indicated that students found synchronous sessions most engaging as they were able to interact with their peers and received feedback from the instructor. To preserve the precious time for output interaction, White et al. (2020) also designed a one-to-one SCOLT Chinese synchronous class model to personalize the meaning exchange interaction for a single student with supplemental asynchronous materials.

To create a space for negotiation of meaning, the instructor will need to make the online communication less controlling. Heins et al. (2007) reported that online teachers tended to place a more dominant role in communication than in face-to-face class, making communication to be one-way or only require "brief and formulaic learner contributions" (Little, 2007, p.21). It should be noted that the meaning negotiation will be effective when it covers deeper processing of messages that require more mental effort from students than concise responses to teachers' prompts. Therefore, less controlling classrooms can entail more meaning negotiation chances for students. Students will increase self-efficacy when they can apply the understanding of Chinese language and culture properly in meaning negotiations (Ruan et al., 2015).

Strategy 2 for Competence Support: Optimizing challenges. Doughty and Long (2003) stressed distance language instruction design need to take "Learner Syllabuses" into account (p.65). It refers to the developmental nature of language acquisition that learners follow certain sequences and stages in interlanguage development. They critiqued the idea that what has been taught will be what is learned. Learners decided the acquisition order of language structure, rather than following the orders determined by the textbooks. The acquisition sequence is, therefore, independent from the instructional sequence. Doughty and long suggested that online language courses should place the understanding of learners' stages of development as the primary focus instead of the language itself. Instructors in the online language course need to increase communication with students to understand students' current capacities and readiness for materials.

Optimal challenges tailor activities to students' current cognitive capacities, attuning the difficulty to be readily reachable while remaining challenging. Teachers will need to break down tasks into smaller subtasks in online Chinese learning. Stickler and Shi (2013) found students felt cognitively overloaded in the online Chinese class interaction when seeing multiple tasks on one slide, which led to a misunderstanding of the task.

In addition, students need to experience success in challenging but appropriate tasks. For students with lower self-efficacy, tasks with smaller achievable steps are conducive to improve perceived competence. Students who need challenges may find boredom in easily

mastered tasks. Stickler and Shi (2014) suggested that teachers be flexible when teaching Chinese online and "not withdraw Pinyin too early" (p.70). They conducted an eye-movements study to explore online students' attentions on Pinyin and Chinese characters on the reading of slides. They identified different patterns among learners. Advanced learners relied predominately on characters, whereas beginners relied mostly on Pinyin. Intermediate learners needed both Pinyin and Chinese characters for comprehension. Lee (2016) found that novice students prefer structured tasks to tasks with free topics. They felt less competent as they had limited second language skills than linguistically strong students. Students with better language skills reported they found "teacher-assigned topics somewhat repeated and bland." (p.90). They preferred to talk about self-selected topics that were related to the unit theme. Buang (2011) applied a tech tool to support extensive reading in online learner-centered activities. Learners received reading tasks that were assigned based on their abilities. The adaptive reading materials were differentiated based on the grader reading materials and the number of reading materials that they needed to completed. Students can read at their own pace and were encouraged to monitor their progression on their own.

Instead of giving pre-determined materials only, the instructor can integrate the design of optimal challenges with the design of choices. Take the design of reading materials as an example, the instructor can provide different versions of the same authentic reading content for students to choose. A challenging version is the one that retains most of the texts and cultural information; A modified version keeps the essential message while substitutes some words and phrases to make it comprehensible to students, Pinyin in this version can be only provided when needed (e.g., unfamiliar words); to facilitate students with low language competence, an easy version containing simplified information with Pinyin may help them lower the anxiety for the task.

Strategy 3 for Competence Support: Supporting progress monitoring. SDT suggested when the environment is autonomy-supportive, the learner can shift to an active role, observing and identifying the obstacles in *self-evaluation*. Murray et al. (2011) advocated explicit teaching on self-evaluation in distance language courses as students would be more engaged in noticing the gap between their goals and current capacities. For example, students can identify contents that they help in the asynchronous study; instructors then can prepare accordingly and address their questions in the synchronous classroom. However, research also showed that some students, especially novice students, had difficulties in monitoring progress and identifying weaknesses that need assistance (Lee & Hannafin, 2016).

Expert-monitoring has been found to be an effective technique in offering guidance. Teachers can help learners monitor the progress through frequent question prompts and step-by-step check for understanding (Lee & Hannafin, 2016). Bang (2014) designed a "schema place" in an online language class, where students can interact the exercises. The schema place was designed to help students diagnose the strategies and competence they used and activate the schema for upcoming tasks. With the help of external evaluation, students gained a better understanding of the learning task and were able to reflect the gap between what has been done and what was expected (Lee, 2016).

However, external evaluation with judgmental feedback (e.g., right, wrong) does not contribute to their growth of competence (Ryan & Deci, 2017). *Offering informative feedback* will be beneficial for learners to focus on what can be improved and to acknowledge their accomplishments and efforts, helping them to recognize that language competence is related to some factors they can control. White et al. (2020) provided a feedback form in synchronous learning to remind learners to revisit the learning content in the synchronous session. Based on the written records, the tutor followed up with further practice in the next session. The instructor also needs to decide the degree of corrective feedback (e.g., recast, repeat, metalinguistic). Being negative informative, it may decrease motivation when dominating the class as students may feel frustrated when they cannot see their progress.

3.3 Relatedness-supportive strategies

Empirical results in L2 research revealed that relatedness was positively related to intrinsic motivation, identified regulation (Carreira, 2012; Noels et al., 2000), or introjected regulation (Carreira, 2012). Akbari et al. (2015) discovered that relatedness was the strongest predictor of L2 learning outcomes in a study of using Facebook for a language class. They argued that communication with peers and teachers, or with native speakers is a key element in L2 learning. They highlighted that online community building is conducive to the development of relatedness and can sustain the interactions.

Strategy 1 for Relatedness Support: Providing interaction opportunities. Language learners have at least two communities they need to relate to develop their sense of belongingness to target language learning: the learning community in the online classroom and the members in the target language community (Alm, 2006). Hence, an online language class should create interaction opportunities for both teacher-student and student-student communication in virtual classrooms, and encourage them to interact with native speakers and engage in collaborative activities.

Many studies have implemented task-based language learning (TBLT) to support the design of online language learning interactions. TBLT assumes that learners developed their linguistic abilities through communicative activities. TBLT focuses on having students experience meaningful tasks rather than studying decontextualized linguistic structures or text-based lessons (Doughty & Long, 2003).

Lai et al. (2011) implemented a pre-task, during task, and post-task cycle in the design of Chinese synchronous sessions. Various activities have been implemented in different phases, including information gaps, decision making, problem-solving. For example, a pre-task problem-solving was designed as finding out "illogic choices transportation means for different trips"; an on-task decision making activity asked students to plan a trip within a budget; in a post-task information gap activity, students worked together to figure out the cost for a trip with certain transportation means (p.102).

Guo and Möllering (2017) designed similar collaborative tasks in Chinese synchronous sessions that included information gaps, decision-making, and jigsaw tasks. Students in one of the jigsaw tasks participated in the discussion of maps and directions.

Using visual supports in Blackboard Collaborate, students were able to use the digital pen to show directions when telling their partners where a specific building was.

Sato et al. (2017) implemented the tasks in the asynchronous study with the use of VoiceThread and Google doc. For instance, students learned vocabulary through short dialogues in VoiceThread, and completed Guess and Try questions based on what they noticed in the dialogues. To establish task relevance and authenticity, the instructor asked students to post a picture of their rooms in VoiceThread and described them freely, such as "who they belonged to, where they were from, whether they were expensive, and what she thought of them" (p.762).

Strategy 2 for Relatedness Support: Improving authenticity of the communication. The approach of using authentic materials has drawn significant attention in language teaching. However, using authentic material does not necessarily carry the authenticity of the task. It's worth noting materials that are extracted from the authentic target language context does not promise the authentic communicative purpose when comprehension questions or vocabulary activities follow them, or could only bring "cosmetic authenticity" (Mishan & Strunz, 2003, p.239).

Herrington et al. (2009) summarized that an authentic e-learning task should be an ill-defined problem and provide opportunities for students to examine, investigate, and analyze the issue from different perspectives. Tasks need to enable learners to collaborate and reflect on the learning process. In language learning, it should focus on authentic aspects of language use (Ozverir & Herrington, 2011), and aim to mirror real-world communication process (Ramírez Ortiz & Artunduaga Cuéllar, 2018).

In other words, using authentic materials without communication purposes may not trigger the learner's potential agentic role to control the use of language in a real-world situation in an online learning context. Authenticity in an online learning environment needs to place communication as the core when using authentic materials rather than just reading or viewing materials. Ozverir and Herrignton (2011) remarked that learners might engage in "comparing, informing, persuading, analyzing, reporting or instructing" to practice communication when using authentic materials (p.1426).

In addition, learners will perceive the value of language learning online when they are engaged in controlling their language use to resolve real-world communication problems (Lee, 2016). To enhance the authenticity of online communication, Ankan and Bakla (2011) designed blog writing tasks and asked students to read and comment the blogs posted. Students reported that they were motivated by the blogging activities due to the authentic communication. They found writing in the target language meaningful because they knew their posts would be read by visitors. Similarly, Abdallah and Mansour (2015) designed communication tasks in 3D virtual world where students can practice target language in simulated real-life interaction. They invited strangers in the 3D virtual world to join the cooperative language tasks so that students can have a chance to practice the language with native speakers.

Strategy 3 for Relatedness Support: Improving "willingness to communicate".
Many research studies in online learning have found that an interactive task by itself does not yield the improvement of relatedness, the relatedness development did not happen unless learners were willing to (Butz & Stupnisky, 2017; Lee, 2016). Therefore, how to improve "willingness to communicate (WTC)" remains a challenging question in online language learning.

WTC, as defined by MacIntyre et al. (1998), is a "readiness to enter into discourse at a particular time with a specific person or persons, using a L2"(p.457). Students' readiness to interact with others in the classrooms can impact the quality of community interactions. Unwillingness to communicate ultimately leads to ineffective language production. Perceived competence has been found to have a direct effect on WTC (Yashima, 2002). In addition to this, a number of factors were found to influence their WTC in digital context, including situational topics, psychological conditions and interlocutors (Kruk, 2019). Students' WTC decrease when they experience boredom in learning or feel anxious, unsecured, or unprepared. Teachers need to respect students' thoughts, display trust in students, and allow time for communication preparedness.

This is especially true for online WTC. The nature of online communication has impacted the time for communication. The lag time has been found to be a unique feature in online communication (Freiermuth & Jarrell, 2006), students may need at least "three to four seconds after the end of one turn before beginning their own" (Rodine et al., 1999, p. 58) Researchers have also called for a "tolerance for silence" (Stickler & Shi, 2013, p.15) in online Chines synchronous classrooms since they may need longer time to prepare the response or to solve technical problems. Besides, studies discovered that peer group factor influenced WTC. Students were found to be more willing to communicate in smaller group sizes and when they were familiar with interlocutors (Cao & Philp, 2006). Their WTC also decreased when they were paired with learners with low WTC. Some students even reported they were more willing to interact with teachers instead of participating in a pair-work (Aydın, 2017). Thus, to foster WTC, an online live session will need to limit the size to create more opportunities for students to participate. Before assigning students to a different breakout room, the instructor needs to consider each student's readiness for communication, and provide helpful resources (e.g., cue words) when needed.

4. Conclusion

Motivation has played a crucial role in online learning success and language competence development. Past literature has suggested SDT as an appropriate framework in understanding motivation in language learning and provided strong evidence of the relationship between needs-support and language learning engagement (Comanaru & Noels, 2009; McClelland, 2013; Oga-Baldwin et al., 2017). The paper has explored how design strategies can best provide learners' psychological needs satisfaction and support their growth of motivation in the online Chinese language learning environment from the perspective of SDT. Needs satisfaction is a significant predictor of autonomous motivation – a high-quality type of motivation. Students will experience disengagement and negative emotions when their needs were strongly thwarted in the context. However, they will be

able to move toward "thriving, wellness, and integrity" (Ryan & Deci, 2017, p. 9) when the context affords a basic-need-supportive learning environment. Therefore, the future motivational design should be the primary concern in an online language learning environment as it will influence the quality of students' participation and their language learning outcomes.

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