

RESEARCH BRIEF

Vocational Student Gratitude Appreciation Through Gamification/GamiLearning Activities

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Education's role as a key player in the development and well-being of a nation is widely recognized in Singapore, where much importance is given to its educational system (OECD, 2010). Curricula in Singapore are designed to fully support the learner, which ensure that graduates are capable of finding employment in the fields they study (Ng, 2016). Having a well-educated and adequately trained populace benefits the economy and promotes national development (Reeve, 2016). As such, Singapore's educational system is accepted to be among the very best worldwide, and many countries look to it for ways to improve their own educational standards.

In the Asia Pacific region, the Singaporean government has conceptualized and implemented a host of educational reforms under the vision of "Thinking Schools, Learning Nation" since 1997 (Tan, 2008). This vision encompasses four main areas: critical and creative thinking, the use of information technology in education, citizenship education, and administrative excellence. In Singapore's classrooms, self-directed learning is now also stressed over formal teaching (OECD, 2010).

In his 2004 inaugural National Day Rally speech, the constructivist concept "teach less, learn more" (TLLM) was introduced by Singapore's Minister of Education Lee Hsien Loong (Teo, Deng, Lee, & Lim-Ratnam, 2013). In very simple, but profound terms, this

mandate directs our attention to refocus on the three most important dimensions of education, including the *why or* purpose for what we teach, the *what or* content of what we teach, and the *how of what* we teach (Kagan, 2006; Teo et al., 2013).

TLLM was developed to address the gap between instructional practices and various educational initiatives introduced since 1997 under the Thinking Schools Learning Nation (TSLN) vision (Teo et al., 2013; Tong, 1997). TLLM also encourages students to reach conclusions themselves about the world around them. Lee Hsien Loong's vision was to develop learners to think, as opposed to simply repeating memorized knowledge.

Ng (2008) also pointed out that engaged learning highlights the construction of knowledge (not only transmission of knowledge), understanding (not only rote memorization), pedagogy (not only activity), social constructivism (not only individual study), self-directed learning (not only teacher-directed), formative assessment and self-assessment (not only summative grades), and learning about learning (not only learning about subjects).

According to Krathwohl, Bloom, and Masia (1964) and Harrow (1972), the teaching of students is divided into three areas. The first area is the cognitive domain, which trains children to know how to think. The second area is the affective domain, which instills moral

discipline. In Thailand, this is realized through the love for the monarchy, knowledge of rights and obligations, and observance of the right attitudes. Finally, the third area, the psychomotor domain, which develops learners to be well-rounded people through practice and skills acquisition (Harrow, 1972).

Being a well-rounded person includes adequate development in body, mind, intellect, knowledge, ethics, virtues, as well as the ability to live harmoniously with others as a positive member of society. Aristotle identified the highest good as an intellectual virtue (Aufderheide & Bader, 2015), with a virtuous action being chosen to set things right. Cicero (106–43bc) indicated that gratitude is not only the greatest of the virtues, but the parent of all of the others (Wood, Joseph, & Linley, 2007). A noble person is mindful and thankful of the favors he receives from others, with the Buddha Gratitude being an emotion that most people feel frequently and strongly (McCullough, Emmons, & Tsang, 2002).

It is also important that attention be paid to these attributes beyond simple academic development. In modern times, however, common behavioral problems among the youth stem from broken families, weak familial relationships, poor parenting, lack of attention, and improper training or upbringing (Hoeve et al., 2009). These factors lead to poor decision-making and lack of self-esteem, which cause susceptibility to peer pressure and imitation of inappropriate behavior in the pursuit of gaining acceptance from others.

Failing to teach younger generations to avoid these pitfalls opens the door to significant societal problems down the line, and it is imperative that education tends to the development of young students to become good, moral people who are socially desirable. Therefore, there is an undeniable advantage for a nation as a whole to develop moral virtues, such as gratitude.

Virtues, however, can be cultivated easily in youth, as they are at an impressionable age. Parents, teachers, and communities should pay close attention to the cultivation of these virtues to provide society's youth with discretion, responsibility, and self-esteem, which comprise the moral quotient (MQ) of personal development (Lennick & Kiel, 2008). However, MQ—being, in essence a person's moral compass and governing areas such as honesty, self-

control, responsibility, discipline, conscience, and respect—needs to grow as a habit and requires time to be properly cultivated and refined. It is, therefore, impossible for MQ to take root in a short time period (Coles, 1997).

Additionally, in recent decades, studies have linked gratitude (a social emotion) to an increase in happiness, a stronger relationship, and improved physical health. Also, research has shown that gratitude amongst youth suggest that it increases positive emotions and better attitudes toward school (*The Greater Good Science Center*, 2016; McGonigal, 2015).

Literature Review

Teach Less, Learn More (TLLM)

According to Tan and Abbas (2009), TLLM encompasses four main areas, including creative and critical thinking, educational use of information communication technology (ICT), citizenship education, and administrative excellence. TLLM requires every school to develop students as thinkers, resulting in increased creativity and innovation as well as an understanding of how the fruits of this creativity and innovation can be applied to and benefit everyday life. Having the teacher's role as one who encourages exploration and supports the reaching of individual students' own conclusions as opposed to rote instruction and lecture increases meaningful interaction between the teacher and learner and opens opportunities for students to express their thoughts and ideas. This, in turn, promotes skills useful for lifelong learning.

Attempting to emulate the TLLM policy of Singapore, Thailand introduced educational reform, in which a mandate for teaching the importance of moral soundness and virtues was implemented (Saengpassa, 2014). Furthermore, the Thai Ministry of Education expects the subjects of History and Civic Duty to promote patriotism, discipline, respect for others, and a sense of duty, readiness to sacrifice, and many more good values among all children.

The following educational management concepts observed from Singapore's TLLM process were therefore adopted for this study (Figure 1). They included 1) self-learning constructed

(building knowledge by oneself), 2) active learning, 3) collaborative learning, 4) relationships with others, 5) connectivity with the environment, 6) real-life learning conditions, 7) active learning processes, and 8) evaluation from observation of behaviors.



Figure 1. Learning components of the TLLM constructivism concept.

Confucianism

The foundation for these ideas, however, are not new and are rooted deeply in an ancient Confucian ethics philosophy. Bao (2001) even observed that Sino-Chinese ethics or morality is a combination of Chinese Confucianism and Thai Buddhism. Confucius (551-479 B.C.) had three main doctrines, which were related to governance philosophy, social ethics philosophy, and education (Fernandez, 2004; Ruangkanjanases, Posinsomwong, & Chen, 2014; Sudthayakorn, 2008). The relationship among these three groups is considered as the development roots in bringing prosperity in terms of the mind, the body, and society (Figure 2).

Also, according to the principles of Confucianism, expressing gratitude encompasses the following: 1) gratitude to parents and benefactors, 2) gratitude to teachers, 3) gratitude to the nation, 4) gratitude to religion, 5) gratitude to humanity, and 6) gratitude to oneself (Figure 3).

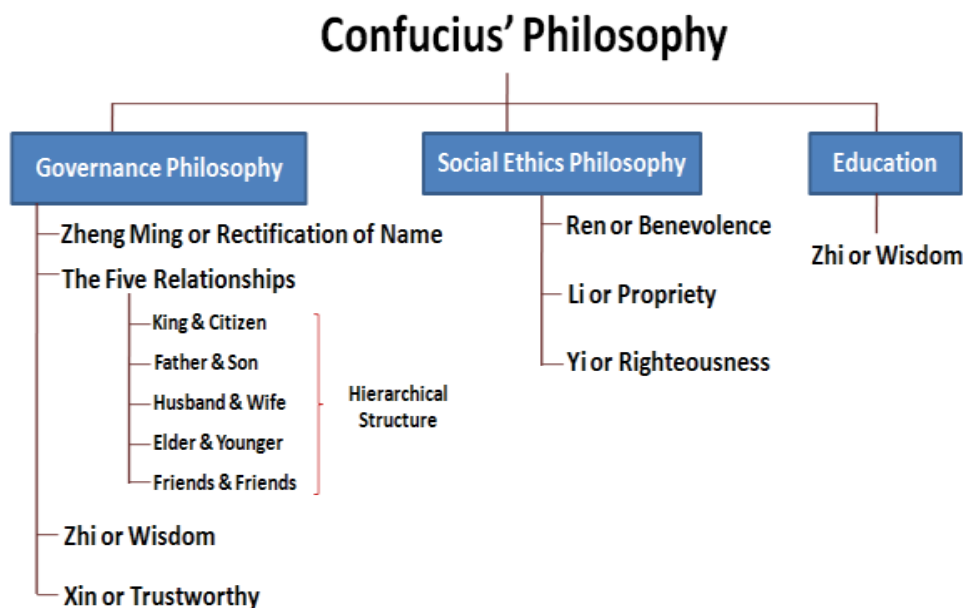


Figure 2. The core tenets of Confucianism.

Source: Ruangkanjanases et al. (2014).



Figure 3. Gratitude based on the core tenets of Confucianism.

Constructivist Constructivism

There are many variations of what has become known as *constructivism*, but one prominent theorist known for his *constructivist* views is Jean Piaget, who focused on how children make meaning in relation to the interaction between their experiences and their ideas (McLeod, 2015). Piaget's (1932) theory of *constructivist* learning widely impacted learning theories and educational teaching methods, and forms a foundation in numerous educational reform movements, including those in Thailand.

Constructivism and constructionism evolved from the life-long research of Seymour Papert (Papert, 1980; 1990), who studied the works of Jean Piaget. Ackermann (2001) discussed the differences of Piaget's constructivism and Papert's constructionism, and stated that Piaget's constructivism offers an opportunity to see what children are interested in. Constructivism also helps educators see how learners achieve their objectives during different stages of their development, while Papert's constructionism focused more on the art of learning.

According to Berger and Luckmann (1966), *social constructivism* is a sociological theory of knowledge

according to which human development is *socially* situated and knowledge is constructed through interaction with others. Vygotsky (1978, 1986), *who was* Soviet psychologist in a post-revolutionary era which discussed *social constructivism* as a variety of cognitive *constructivism*, which emphasized the collaborative nature of learning. Vygotskian social-constructivist ideas, therefore, recognize that the individual's cognitive development is bound up with social interaction in learning groups, and cannot be separated from social life (Vygotsky, 1978).

Furthermore, according to research compiled by the University of Hong Kong (n.d.), social constructivism also focuses on the social nature of cognition, and suggests approaches that can give students the opportunity for positive, contextually meaningful experiences from which the learner can search for patterns, raise questions, and construct their own models. Additionally, social constructivism can help with the development of learner community that can engage in activities, discourses, and reflection. It also encourages learners to make on more ideas, while pursuing autonomy, mutual reciprocity of social relations, and empowerment.

Cognitive constructivists, on the other hand, argue that knowledge is actively constructed by learners, which is often considered a "weak" form of constructivism.

Gamification/GamiLearning

According to Yu-kai Chou (2013), a pioneer in gamification, gamification is the craft of deriving all the fun and addicting elements found in games and applying them to real-world or productive activities. Deterding (2011) further defined gamification as the use of game design elements in a non-game context. Gamification, thus, encourages student participation through the process of applying games to education. It also promotes behaviors and thinking within the constructs of games designed as educational activities that take advantage of the natural inclinations and habits of today's youth. It must, however, be stated the role of gamification is not just regulated to online, digital content but instead, can be employed through board games and other forms of "gaming" environments. As

the term and process have evolved, other scholars have created a new term for this non-digital environment, which is *GamiLearning*.

Educational games, based on the belief that learning can be facilitated by making it more fun, can act as an appropriate avenue to engage students and encourage them to be active participants in their own intellectual and moral development (McGonigal, 2015). As games are interactive and focused on the user, they are tools that can make learning fun and more accessible since they can be played at the user's convenience, be it inside or outside the classroom, or during or outside of study time. This corresponds to the modern concept of "edutainment," and meaningful learning is achieved through an experience that is self-motivated, as opposed to simply receiving information from a teacher.

Therefore, applying gamification/GamiLearning education is an attractive avenue to cultivate moral virtues such as gratitude in youth. In so doing, values and self-esteem can be increased, and students can find their place as equal members of society, feeling empowered to meet their potential, and grab the opportunities afforded them so as to develop themselves and their country.

Appealing to established theories of intrinsic motivation, gamified systems commonly employ motivational features like immediate success feedback; continuous progress feedback; goal-setting through interface elements like point scores, badges, levels, or challenges and competitions; relatedness support; social feedback; recognition; comparison through leaderboards, teams, or communication functions; and autonomy support through customizable avatars and environments, user choice in goals and activities, or narratives providing emotional and value-based rationales for an activity (Johnson et al., 2016; Ryan & Rigby, 2011).

Therefore, for purposes of this study, the research elements identified were: 1) challenges, 2) ratings, 3) levels, 4) activity prizes, 5) feedback, and 6) evaluation of the behavior of the participants (Figure 4).



Figure 4. The mechanics of games used in gamification/ GamiLearning for vocational education.

Objectives

This research aimed to develop a gamification activity model to promote and determine the effectiveness of the virtue of gratitude in vocational college students according to TLLM and the concepts of constructivism.

Methods

To develop gamification activities promoting the virtue of gratitude, data were collected by means of semi-structured interviews utilizing group discussion techniques from nine Thai experts, which included seven men and two women. Two individuals were experts in gaming, two were experts in designing educational materials and technology, three were experts in morality and ethics, and the remaining two were experts in promoting morality and ethics in students. The data was compiled and arranged into categories corresponding to educational management, activities planning, and methods to encourage students to have desirable features, such as virtues according to the TLLM educational management model, the principles of Confucianism for gratitude, and other

concepts based on constructivist theory. From this process, the following conceptual model for the effectiveness of gamification in promoting gratitude was developed (Figure 5).

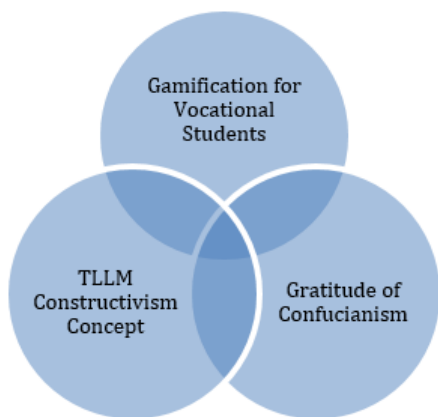


Figure 5. Conceptual model for gamification effectiveness in promoting gratitude.

After the development of the conceptual model by the nine experts, the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) process was chosen for the gamification development of the gratitude learning process (Grafinger, 1988; Molenda, 2003). Figure 6 represents a modified version of the model for the study’s gamification process.

From the analysis and use of the ADDIE model for the development of student gamification activities, there were a number of possible activities which were determined could be used. From this list, each item was recorded into a log, which became known as the *Good Deed Bank Book*. A common set of rules was also established for participation in the award scheme

for the activities, encouraging interpersonal and environmental interaction with the learner dictating their own participation in the activities, including checking and evaluating progress, as well as presenting results to obtain the awards (Table 2).

Determining Effectiveness

From the population of students enrolled at the Thai-Taiwan (BDI) Technology College, 27 vocational students were selected to participate in the gamification activities promoting the virtue of gratitude.

Good Deed Bank Book

As illustrated in Figure 6, the pattern of activity in the *Good Deed Bank Book* game promotes the practice of gratitude by having learners accumulate knowledge and points by doing prescribed activities each day. The gamification process instills motivation and support from other participants and, in turn, develops the learners’ enthusiasm for learning through the following steps:

1. It encourages and reinforces self-learning activities, such as showing respect for parents and doing household duties (Ruangkanjanases et al., 2014).
2. The game allows participating students to accumulate points based on performing good deeds and keeping a record thereof in the Good Deed Bank Book and related database programs. The Good Deed Bank Book contains details on the accumulation of points from each activity along with pertinent rules and regulations.

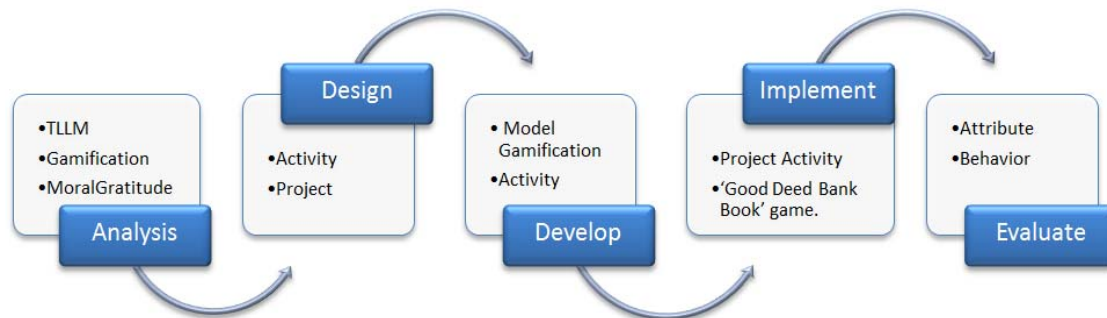


Figure 6. ADDIE model for application of gamification activities.

Table 2
Gratitude Activities Promotion

TLLM	Gratitude Component	Activity / Project
1) self-learning constructed 2) active learning 3) collaborative learning 4) relationships with others	gratitude to parents and benefactors	Fun drinking tea together Happy family Family sports
5) connectivity with the environment 6) real life learning conditions 7) active learning processes	gratitude to teachers	Teachers' day recognition Assistant volunteer teacher We love our college
8) evaluation from observation of behaviors	gratitude to nation	Conservationist trash sorter Bike for Dad Bike for Mom Do good for Father project Farm work project
	gratitude to religion	Format mind, delete emotion Youth Dharma Recite virtues Spiritual meditation
	gratitude to humanity	Foundation of virtuous youth project Elder teach younger, friend teach friend
	gratitude to oneself	On time for 5S Exercise the mental & spiritual Food for health Anti-drug campaign

3. Points are either awarded or retracted through the Good Deed Bank Book, which the teachers monitored through a central database.
4. Point awards are obtained by participating in activities and events developed and supported by the college (Table 2).
5. Showing effects on learning from the activities through deposits in the Good Deed Bank Book and participation in events determined by the college by expressing the virtue of gratitude and making presentations to the administration for scholarship or funding consideration.
6. Assess the behavior of the participants through observation of their behavior at home and at school, as well as through interviews with parents, teachers, classmates, and general inquiry.

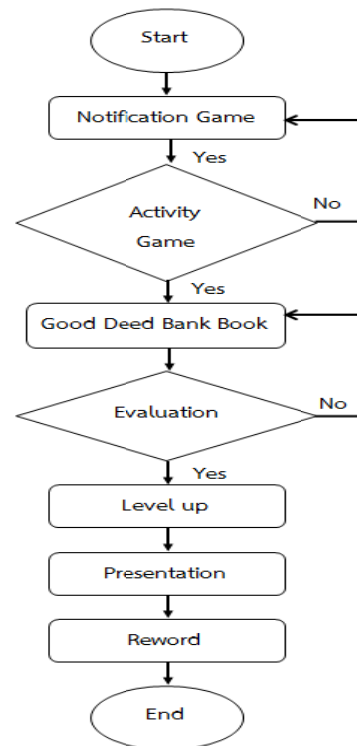


Figure 7. The Good Deed Bank Book game.

Table 3 shows the results of the analysis of 27 vocational college students' participation in the Good Deed Bank Book game and their satisfaction concerning the project. Student's satisfaction was measured by using the questionnaires with the \bar{X} (mean scores) and S.D. (standard deviation).

From the research, the activity that was liked the most was the activity process and quality of the activity with an S.D. score of 4.47. This was followed by the satisfaction gathered from working in a team with an S.D. score of 4.5 and finally, satisfaction with the classroom and building environment (facility) with an S.D. of 4.43.

Results

From the sample group of 27 vocational students from the Thai-Taiwan (BDI) Technology College, 26 were male and one was female. Additionally, there were 12 vocational students from level 1 and 15 students from level 2. The Good Deed Bank Book game was played throughout an entire academic year, in which the students' moral and ethical values were measured. From this, the following results were noted:

Students participating in the activities were overall satisfied with the team activities. The students felt that the game enabled them to better handle their work systematically, while also affording them better teacher counseling opportunities.

From the beginning of activities, a team of teachers and counselors were available to help screen the list of good deeds each student recorded in their book and the survey found that the knowledge gained from the activity could be applied to everyday life. Also notable, was the positive change in the students participating in the Good Deed Bank Book game, who expressed gratitude in the following five areas.

Gratitude to Parents and Benefactors

From parental inquiries and observations, students demonstrated respect for parents by helping with chores and housework and taking responsibility for duties assigned to them. They demonstrated awareness of the importance of the family organization and the grace of parenthood and openly expressed as a reciprocal gesture many good deeds showing their parents respect and obedience.

Gratitude to Teachers

From observation and soft skill evaluation, students were noticed to behave positively and displayed enthusiasm for study and cooperation during activities. They showed respect and obedience for assigned tasks, demonstrated discipline and kindness, were open to human interaction—both with peers and teachers—dared to offer ideas, and expressed themselves creatively.

Table 3
Satisfaction from Activities Promoting Gratitude with the 'Good Deed Bank Book' Game

Satisfaction component	Mean	S.D.
1. Satisfaction from the activity process	4.47	0.18w
2. Satisfaction from working in a team	4.45	0.15
3. Satisfaction from the facility	4.43	0.20
4. Satisfaction from the quality of the activity	4.47	0.28
Total	4.45	0.20

Note: Statistical significance is at the 0.05 level, S.D. = Standard Deviation

Gratitude to the Nation

From observations, students had obtained a higher sense of civic duty and frequently participated in community events such as national and royal activities. They also acted as good citizens and applied the concepts of Thailand's late King Bhumibol Adulyadej's sufficiency economy philosophy (SEP) in everyday life (Poungsuk, Pourpan, & Thongsuk, 2016).

Gratitude to Religion

From having students participate in the activities of giving merit and other religious activities, students learned to cooperate better and to understand religious methods in the development of psychological intelligence, such as meditation and rational thinking. Other virtues were adopted, including the practice of not persecuting others, eating vegetarian food, and observing the Five Moral Precepts of Buddhism (Cline, 2015; Klechaya & Glasson, 2017). These included:

- not harming living things;
- not taking what is not given;
- sexual misconduct;
- lying or gossiping; and
- not taking intoxicating substances (e.g., drugs or alcohol).

Gratitude to Oneself and Fellow Man

Observations and interviews found that the students reduced or quit their vices and demonstrated more positive attributes, such as punctual behavior, sharing with friends, assisting others, and being generous with time and opportunities. They also showed a better ability to properly allocate time and make priorities.

Morality, ethics, and virtues must be instilled and nurtured consistently and continuously to build behavior and habit. Morality cannot be taught or refined in a short time. As one grows up, one accumulates values and behaviors which will determine good morals and ethics, so positive values and behaviors must be instilled at an early age (Coles, 1997). It must also be comprised of three distinct factors: direct moral teaching to children (Pargament & Mahoney, 2005), transmission of the moral behavior from adults to

children through example, and displays of love and discipline.

The one-year gamification gratitude learning project gave the Thai vocational students opportunities to learn less in a traditional manner, and instead learn on their own from activities that created conditions for them to practice self-learning regularly and to contemplate cause and effect, thereby leading to critical thinking (Kraisuth & Panjakajornsak, 2017). Gamification or GamiLearning is well-suited for modern students and is an attractive avenue to motivate students and encourage self-learning. This is supported by discussion in the United Kingdom, where the teaching of morals and ethics in schools is being debated, as some feel that fundamental questions about how people live their lives should be a fundamental aspect of teaching (Tait, 2015).

Conclusion

The format for developing knowledge through the TLLM learning management format as outlined in Singaporean educational constructivist theory for promoting virtue and gratitude is beneficial to students, has great potential if implemented elsewhere, and is appropriate and inclusive. The TLLM gratitude gamification program can also be used as a way of arranging and controlling activities. The format for learning management should be constructed from the qualities of expressing goodness and concrete expressions of gratitude, as well as establishing rules and understanding in establishing basic pacts in a clear manner. It should also be uncomplicated to participate in and have examples that allow students to understand, such as recitation of holy books of virtue, showing dramatizations of virtue, and making a notebook on virtue. Activities should be inserted into the structure of the place of study (e.g., supplementing tea to remind of kindness, family happiness, virtue, and so on). Knowledge obtained could then be applied to daily life which significantly improves overall student behavior. Using Confucian principals, the students can express their gratitude using the Five Moral Precepts of Buddhism.

Activities for promoting virtue, morality, and gratitude are supposed to have a format that is easy to

understand, and that connects to the idea of parents' tiredness and difficulties in earning money. There should be a process which provides a concrete expression of gratitude and has various activities that are fun. There also needs to be a time management process which conforms to the stages of physical and mental development in the arrangement of the activities, which in turns helps in student appreciation and continued practice. There needs to be uncomplicated standards for measuring results, as well as a plan which is always reinforcing the student's emotional health.

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