FLIPPED CLASSROOM ACTIVITIES DEVELOPMENT VIA ONLINE MEDIA TO THE INFLUENCE OF SELF-DIRECTED FOR SENIOR HIGH SCHOOL STUDENTS IN CAREER AND TECHNOLOGY SUBJECT AT CHONGQING HIGH SCHOOL, CHINA

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ARTICLE HISTORY
Received: 19 September 2024 **Revised:** 3 October 2024 **Published:** 17 October 2024

ABSTRACT
The objectives of this study were 1) to develop flipped classroom teaching activities via online media affecting self-directed learning, 2) to study learning achievement of senior high school students with flipped classroom activities via how online media affecting self-directed learning, 3) to compare pretest and posttest sere, self-directed learning ability of senior high school students learning with flipped classroom activities via online media affects self-directed learning, and 4) to study senior high school students' opinions on learning with flipped classroom activities via online media affecting self-directed learning. The population consisted of 120 senior high school students in grade 12 of Chongqing senior high school in the first semester of the academic year, 2022. The samples were 92 students determined by Krejcie & Morgan table. The instruments used in the study were 1) online media for use in flipped classroom activities,2) self-directed learning ability test, 3) the achievement test and 4) a questionnaire form on student's opinions. The statistics used for data analysis used mean, standard deviation, and t-test. The research results revealed that 1) The results of the development of flipped classroom teaching activities via online media affecting self-directed learning was at a very good level. 2) The results of learning achievement of flipped classroom teaching activities via online media affecting self-directed learning was at a very good level. 3) The self-directed learning ability of flipped classroom teaching activities via online media of senior high school students was higher than pretest. 4) The results of student's opinions towards flipped classroom activities via online media affecting self-directed learning was at a very good level.
Keywords: Flipped Classroom Activities, Online Media, Self-Directed, Senior High School Students

CITATION INFORMATION: Yao, Z., & Bhotisarn, P. (2024). Flipped Classroom Activities Development Via Online Media to The Influence of Self-Directed for Senior High School Students in Career and Technology Subject at Chongqing High School, China. *Procedia of Multidisciplinary Research, 2*(10), 78.

INTRODUCTION

As China advances into modernity, the nation faces significant economic and social changes. China's one-child policy and economic growth, for example, have altered the values and attitudes of parents, thereby creating new challenges for Chinese teachers. In addition, nontraditional ways of thinking in China's youth have led to various classroom concerns (Romanowski, 2006). Also, the study by Zhang (2020) found that traditional Chinese teaching emphasizes the rote memorization of information, resulting in a lack of student engagement and motivation. The study also found that teachers in China often adopt a one-size-fits-all approach to teaching due to the large class size and limited resources. Zheng, Zhang, Liu, and Wu (2018) found that the high pressure on students to perform well on exams and standardized tests can lead to a focus on memorization rather than a deep understanding of the subject matter. This can limit students' ability to apply what they have learned in real-world situations and hinder their development of critical thinking and problem-solving skills.

Traditional teaching in the classroom is still the predominant approach in China, particularly in rural areas and lower-level schools (Chen, 2020). Despite this recognition, implementing a new teaching approach can take time and effort. One of the main obstacles is the high-steak nature of the Chinese education system, which places a heavy emphasis on exam results and standardized test scores (Hu, Liu, & Zhang, 2019). According to Chen (2020) this can pressure teachers and students to prioritize test-taking strategies over deep learning and understanding of the subject matter. More resources and training may allow cheers to adopt new teaching approaches. This can be particularly true in rural areas where schools may need more help and experienced teachers. However, the COVID-19 pandemic, influent to schools, teachers, and students' lifestyles, were changed. Yuan et al. (2021) described that online learning had been carried out in many countries, with different online learning models being promoted and implemented. As the global pandemic continues, the education environment is forced to change from the traditional classroom or blended teaching mode to the online learning teaching model. Most schools need to study and develop the education system and management. Also, the teaching approaches have to adapt to the new normal. Zhang (2020) also reported that inevitable and urgently needed remote teaching would likely lead to difficulties in studying Chinese characters for beginner learners. Due to the Chinese script's pictographic origin and logographic nature, previous research shows the write-to-read effect and the importance of handwriting-to-character recognition. However, the nature of online learning suggests that all pedagogical practices will have to rely on digital input rather than pen and paper, which minimizes the opportunities for handwriting. Furthermore, the worldwide crisis has also led to a lack of time and resources to develop a well-paced online curriculum that allows beginner learners to acquire characters while developing their character typing skills and building upon narrative inquiry. Benefits of flipped teaching (Flipped Classroom) that Bergmann and Sams describe in their book, Flip Your Classroom: Reach Every Student in Every Class Every Day can be summarized as follows. To change teachers' teaching methods from lecturing in front of the class or from being a teacher to being a trainer, practicing exercises. Practice or do other activities in the classroom for individual students or may be called a tutor in order to use the learning technology that modern children like using ICT media, which can be said to bring Bringing the school world into the world of students, which is the digital world, helping children who are busy with work. Children these days have a lot of activities, so they must help with management. Learn by using lessons taught with videos on the Internet, making it easier for children to study in advance or follow the class, as well as training children to know how to manage their own time. Help weak students to strive for knowledge. In normal classes, these children are neglected, but in reverse learning, they will be cared for by most teachers automatically help children with different abilities make progress in their studies. Their own abilities because children can listen and see the video itself can be stopped anywhere and

rewinded (Review) as you please. It allows children to pause and rewind their teacher, allowing children to organize their learning time as they please. If you're bored, you can take a break. You can divide your time to watch into segments. The interaction between children and teachers increases, in contrast to online learning and flipped learning. It is also a learning format in which students still come to school and students meet with teachers. The flipped classroom is a coordinated use of online learning and face-to-face learning, changing and increasing the role of teachers to be both mentors. Friends, neighbors (Neighbor) and experts (Expert). Teachers get to know students better. The teacher's duty is not only to help students gain knowledge or content, but also to stimulate, inspire, give encouragement, listen and help encourage others. Learning, which is an important dimension that will help enhance children's learning development and increase interaction between fellow students. Official activities. Learning experiences that teachers create allow learners to be able to help and support each other. It's an adjustment. Changing the paradigm of students who used to study according to following the teacher's orders or doing to complete the work as scheduled is self-study. No other people, affecting children who pay attention to learning and interaction between Students together will increase automatically appreciate the differences normally within the same class. An important tool for organizing flipped teaching is information and communication technology. Using the internet to connect between teaching media, teachers and students, searching for knowledge through the network. Communicating through online social networks (Social networks), learning on the web, and learning with e-learning lessons are studies that are gaining attention. Currently, in the modern education industry, using advances in technology and the internet to apply widely organized teaching and learning Teaching in style The transmission of content is done through electronic media such as CD-ROMs, internet networks, intranets, extranets, or via television signals or satellite signals, etc. This type of learning has been imported to Thailand for some time, such as computers. Teaching assistance with CD-ROM, Web- Based Learning, Online learning (On-line Learning), distance learning via satellite or learning with online videos, etc., in which students must learn by themselves by relying on networks, computers or electronic media to convey stories. and content by being able to have one or more media for presenting the lesson, and teaching can be in the form of one-way teaching or interactive teaching (Bupphachatthan Hikorn, 2008) Self-directed learning process, components of This type of learning Self- directed learning consists of learner characteristics with self-directed learning and self- directed learning processes. Self-importance is an important part of the importance of the qualifications of students who must use teaching via the web or the internet is important. The learners must have high responsibility in leading the learning process. They can lead and control themselves, study and research by themselves, while the instructor will be the one who guides them. Facilities Resources must be available and there must be interaction between the learners and the teacher and between the learners themselves. Therefore, self-directed learning is one concept supported in such research. The basis comes from the theory of humanism, which believes in the independence and individuality of human beings. It has been said that every human being is born with goodness, independence and individuality. Find your own choice Have unlimited potential and develop your own potential, have responsibility for yourself and others (Hiemstra, 1994). Learning by leading Self- improvement is a process that Learners have the initiative to analyze and decide what they want to learn. After that, they set learning goals and identify research methods that will lead to success. They can also check and review. Achievements and achievements to be successful in their studies (Knowles & Malcolm, 1978). Learning by allowing students to lead themselves can help train students to be self-reliant and self-development. Self-leadership and self-reliance will help learners gain internal motivation, which can stimulate their desire to learn and help learning to be purposeful which will result in students Learn well, get a lot, and remember for a longer time, as well as put to better use

(Thongchan Hongladarom, M.P.). Therefore, traditional Chinese teaching and education are necessary for schools, and teachers are trying to find a way of the content of the researcher. The subjects that were tested in this research were subjects. Career and technology High school level, content 4 Careers according to indicators and core learning content, career and technology learning subject group according to the 2008 Basic Education Core Curriculum In order for students to use their ability to Developing oneself in learning about careers that students are interested in allowing learners to have independent thinking starting from learning survey of one's own needs, survey of personality of oneself to choosing a career that is appropriate for oneself which currently has new careers A lot has happened. It is also a profession that requires the use of modern technology and the internet as the main basis for operations. And because has many activities at University, the time for teaching vocational subjects has been cut short and due to the problem of teaching and learning management. Teaching in the traditional way in which the teacher is the speaker in front of the class, it makes the students bored. Ignore the lesson don't understand the lesson content and the background above in terms of using technology as a tool for organizing learning. Teaching is beneficial and consistent with the current situation Consistent with education in the 21st century, the researcher therefore chose to study “Development of Flipped Classroom Activities Via Online Media to the Influence of Self-directed for Senior high school students in Career and Technology Subject at Chongqing high school, China” to develop students with the ability to use information and communication technology able to search for knowledge on their own, leading to lifelong learning in the future.

LITERATURE REVIEWS

The flipped classroom is a teaching methodology where the traditional model of instruction, where students receive lectures in the classroom and do homework outside of class, is reversed. In a flipped classroom, students first engage with instructional material outside the course, such as by watching pre-recorded videos or reading text materials. This allows them to go at their own pace and review the material as needed. In-class time is then used for active learning activities such as group discussions, problem-solving, and hands-on activities that allow students to apply the concepts they learned outside of class (Bergmann & Sams, 2012)

Bergman and Sams also said that the flipped classroom model had been shown to have several benefits for students, including increased engagement, better retention of material, and improved critical thinking skills. Additionally, teachers have reported increased satisfaction with the model, allowing them to spend more time on student-centered activities and less on lecture delivery. The concept of flipped classrooms was popularized by Jon Bergmann and Aaron Sams, who is often credited with coining the term. They began flipping their classroom in 2007 and have since become advocates for the model through their writings, presentations, and consulting work. The flipped classroom environment is one in which active learning methods are used (Betihavas et al., 2016). Its conceptual foundations are based on not teaching the lessons in a classroom environment and on student-centered learning theories (Piaget, 1968; Vygotsky, 1978). In a flipped classroom, the information given face-to-face in a traditional approach is taken out of the classroom actively and cooperatively (Strayer, 2012; Chen et al., 2015; Betihavas et al., 2016; Foldnes, 2016; Lai & Hwang, 2016; Zhang, 2018). Students prepare for the lesson using the resources used in a traditional class. When they come to the classroom, they share the information they acquired with their classmates. The flipped classroom is a learning model that aims to eliminate the traditional learning approach in which students are generally passive and based only on the transfer of information. In the flipped classroom, students are active during the lesson and can structure the data (Munir et al., 2018). This role is carried out by applying activities suitable for upper-level cognitive field achievements in classroom environment school (Bergm & Sams, 2012; Sarawagi, 2013).

Because the traditional teaching approach is flipped, in the classroom environment (or small group work), an influential learning group, the individual can experience learning with their classmates and internalize these experiences individually. Looking from the aspect of these assumptions, the flipped classroom is a teaching model that is suitable for an active learning approach. In a flipped classroom, unless class time is enhanced with active learning methods, it can depart from an approach based on constructivism. In other words, the effectiveness of a flipped classroom depends on using class time for solid and successful activities. Solely taking the lesson content out of the classroom via videos does not guarantee to learn effectiveness. Moreover, class time must be structured based on active learning methods and activities. While Bishop and Verleger (2013) are the first researchers to link flipped classrooms and Vygotsky's theory, some research carried out afterward has tried to strengthen this link. According to Maciejewski (2016), in a flipped classroom environment, more available time is available within the classroom. This time can be structured so that students can communicate and interact with each other more in the school. Students can also work within the group during this time and interact with each other for problem-solving exercises. Hao (2016) has also approached flipped classrooms from Vygotsky's (1978) point of view, and in this theory, the interaction of individuals is quite essential. Therefore, in his research, he allowed the student to work in groups to help each other more. Militsa Nechkina, a USSR Academy of Pedagogical Sciences member, first proposed the flipped classroom model in 1984. In the 1980s and 1990s, teachers in Russia tried this instructional strategy. "...let pupils extract new things from an independent textbook reading, which has been created accordingly. Allow them to consider it, then discuss it with their teacher at school and come to a united conclusion." Nechkina wrote of the flipped classroom (Nechkina, 1984), (Derek, 2020) for some, the flipped classroom has become synonymous with active learning. There are many ways to incorporate active learning into your courses, and the flipped classroom is one of those methods. A flipped classroom is structured around the idea that lecture or direct instruction is not the best use of class time. Instead, students encounter information before class, freeing class time for higher-order thinking activities.

Retrieved from (Development, 2020) The flipped classroom is a "pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (The Flipped Learning Network, 2014).

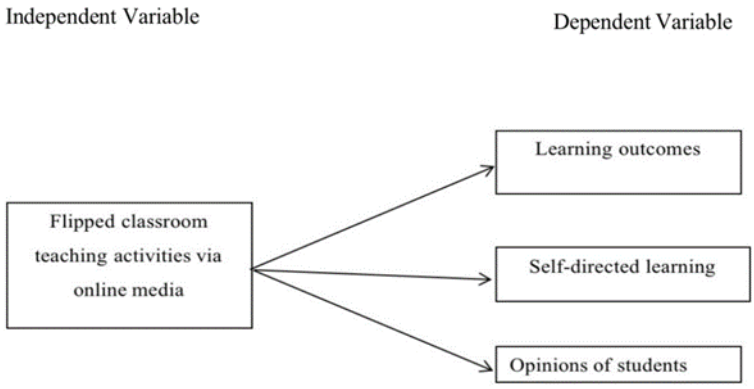

Figure 1 Conceptual Framework

RESEARCH METHODOLOGY

Population and sample Group

The population consisted of 120 senior high school students at Chongqing high school, China who were enrolled as students in careers and technology subject.

The sample used in the research consisted of 92 senior high school students at Chongqing high school, China in the first semester of the academic year, 2022 determined by simple random sampling and drawing lots using the classroom as the random unit.

Research Instruments

Data collection tools for this research, the questionnaire was a rating scale with 5 levels: highest, high, moderate, low, and very low. The researcher has developed an improvement from the research questionnaire Likert scale (Likert, 1932), the questionnaire is divided into 2 parts are:

Part 1 The status of the respondents, it was a multiple-choice with questions about the quality of the respondents.

Part 2 Develop Flipped classroom activities via online media to the influence of self-directed for senior high school students in career and technology subject at Chongqing high school, China. It is a 5-level estimation scale question asking about factors of cognitive learning is divided into 4 areas as follows:

- Flipped Classroom model
- Learning Outcome
- Self-directed Learning
- Student opinions

Data Analysis and Statistics

1) Frequency distribution
2) Percentage Value
3) Average
4) Standard Deviation (S.D)
5) Multiple Regression

RESEARCH RESULTS

Comparative results of this type of learning ability the self-directed before the experiment and after the experiment of students learning via flipped classroom teaching activities through online media.

Table 1 Comparative results of this type of self-directed learning ability

Test	N	$\bar{X}$	S.D.	t	Sig.
Pre-class test	86	3.32	0.93		
Post-test	86	4.15	0.79	7.86*	0.00

*p<0.05

From Table 1 it shows that Students are capable of self-directed learning, before the experiment, the mean was 3.32, the standard deviation was 0.93, which was at a moderate level, and after the experiment, the mean was 4.15, the standard deviation was 0.79, which was at a high level, which after the experiment was significantly higher than before the experiment. Statistics at the .05 level.

Part 3 Results of the study of opinions of students studying with classroom teaching activities via Flipped learning through online media that affects learning self-directed of senior high school students.

Study of students' opinions on learning through teaching and learning activities. Flipped classroom model through online media that affects learning *Self-directed* of senior high school

students. This is a study of the opinion of a total of 92 sample students using an online questionnaire. The results of 92opinions were returned using the mean standard deviation (S.D.) shown in Table 4.4 by analyzing the opinions according to the following criteria.

Table 2 Results of the study of students' opinions on learning with teaching and learning activities in the flipped classroom format via online media.

Evaluation	**Analysis results**			
	$\bar{X}$	**S.D.**	**Results**	**Level**
1) Content of knowledge about careers				
1.1) The content is up-to-date.	5.0	0.0	very good	1
1.2) Techniques for applying The content presentation allows Make learning not boring and interesting.	4.6	0.5	very good	2
1.3) The content is arranged in an appropriate order.	4.5	0.6	very good	4
1.4) Explain the content easily and clearly.	4.4	0.6	good	5
1.5) After studying with flipped classroom teaching and learning activities through online media. to make students understand more content	4.6	0.6	very good	3
Total	**4.62**	**0.46**	**very good**	**1**
2) In terms of teaching activities using a flipped classroom through online media.				
2.1) Overall teaching and learning activities	4.5	0.5	very good	5
2.2) Flipped classroom teaching activities via online media are consistent with learning objectives	4.4	0.6	good	9
2.3) Activities help promote self-learning skills	4.6	0.6	very good	1
2.4) Express your opinions and exchange ideas with friends.	4.4	0.7	very good	8
2.5) The opportunity to inquire about some matters. A collective conversation took place.	4.5	0.7	good	2
2.6) Allows students to seek additional knowledge at any time.	4.5	0.6	very good	4
2.7) Make students responsible for their learning and responsible for themselves.	4.4	0.7	good	7
2.8) The duration of teaching and learning is appropriate.	4.4	0.8	good	6
2.9) Students would like to have teaching and learning organized in this way with other subjects.	4.3	0.8	good	10
2.10) Students are satisfied with teaching and learning activities organized in this way.	4.5	0.6	very good	3
Total	**4.45**	**0.66**	**very good**	**3**
3) Supporting teaching and learning activities in the flipped classroom format through online media.				
3.1) Communication channels through Message E-mail Chat room are appropriate.	4.5	0.7	very good	3
3.2) social media used in learning activities is interesting.	4.6	0.5	very good	2
3.3) Social media used in learning activities is convenient and Easy to use.	4.5	0.7	very good	5
3.4) Social media used Support for studying anytime, anywhere.	4.5	0.7	very good	4
3.5) Good atmosphere promotes learning.	4.5	0.7	very good	6
3.6) Have freedom to learn each week.	4.6	0.7	very good	1
Total	**4.5**	**0.64**	**very good**	**2**
Average of the total	**4.5**	**0.6**	**Very good**	

From Table 2, it is shown that students have opinions on learning with activities. Teaching in a flipped classroom via online media. It is at a very good level. The mean is 4.5 and the standard deviation is 0.6. When considering each aspect, it is found that the content of knowledge about

careers is the comments were ranked 1st as very good, with a mean value of 4.62, a base deviation of 0.46, followed by support for teaching and learning activities in the flipped classroom format through online media, ranked 2nd with an average of is equal to 4.5, the deviation from the base is equal to 0.64 and in terms of learning activities Classroom teaching Reversed through online media, No. 3 has a mean of 4.45, a deviation from the base of 0.66.

DISCUSSION & CONCLUSION

The purpose of this study was to investigate the effectiveness of flipped classroom teaching activities on self-directed learning abilities among senior high school students. The findings from the comparative analysis of pre-test and post-test scores, as well as students' opinions on the teaching method, provide valuable insights into the potential benefits of this educational approach.

1) Enhancement of Self-Directed Learning Abilities

The results presented in Table 4.1 indicate a significant improvement in students' self-directed learning abilities following the implementation of flipped classroom activities. The pre-test mean score of 3.32, categorized as moderate, increased to a post-test mean score of 4.15, categorized as high. This improvement is statistically significant ($t(86) = 7.86$, $p < 0.05$), confirming that the flipped classroom approach effectively enhances students' ability to take initiative in their learning processes.

The success of this method can be attributed to its emphasis on student-centered learning. By allowing students to engage with instructional materials at their own pace before class, they arrive better prepared to participate in collaborative learning activities. This shift in responsibility fosters greater ownership of the learning process, encouraging students to set their own learning goals and seek additional resources, thus enhancing their self-directed learning capabilities (Bergmann & Sams, 2012).

2) Positive Student Opinions on Flipped Classroom Activities

The survey results reflected in Table 4.2 indicate that students had a very positive opinion of the flipped classroom approach, with an overall mean score of 4.5. This suggests a high level of satisfaction with the teaching and learning activities. The breakdown of student opinions reveals that the content related to knowledge about careers received the highest rating (mean = 4.62), indicating that students found the materials relevant and engaging.

Several aspects of the flipped classroom model contributed to this positive feedback:

Engagement with Content: Students expressed that the content was up-to-date and presented in a manner that made learning interesting. This aligns with the principles of effective teaching, which emphasize the importance of relevance and interest in educational materials (Brusilovsky & Millán, 2007).

Supportive Learning Environment: The provision of various communication channels, such as chat rooms and social media, was well-received. These tools not only facilitated collaboration among peers but also supported a more flexible learning atmosphere, enabling students to learn anytime and anywhere (Garrison & Kanuka, 2004).

Promoting Self-Learning Skills: Students acknowledged that the activities helped promote their self-learning skills and responsibility for their own education. This reflects the foundational goal of flipped classrooms: to cultivate independent learners who are capable of critical thinking and problem-solving (Wang, 2017).

3) Implications for Educational Practice

The findings of this study underscore the potential of flipped classroom teaching methods in fostering self-directed learning among high school students. Educational institutions should consider adopting this instructional approach as part of their teaching strategies. Some actionable recommendations include:

Teacher Training: Provide professional development programs for educators to effectively implement flipped classroom strategies, focusing on how to design engaging content and utilize technology to facilitate online learning.
Curriculum Design: Integrate flipped classroom principles into the curriculum, ensuring that instructional materials are relevant, current, and aligned with students' interests and career aspirations.
Resource Accessibility: Ensure that all students have access to the necessary technology and resources to participate in flipped classroom activities, addressing any disparities that may hinder learning opportunities.

Conclusion

In conclusion, the study demonstrates that flipped classroom teaching activities significantly enhance self-directed learning abilities among senior high school students. The increase in mean scores from moderate to high, alongside positive student feedback, highlights the effectiveness of this approach in promoting engagement and fostering independence in learning.
The findings suggest that implementing flipped classroom strategies can lead to improved educational outcomes and greater student satisfaction. As educational practices continue to evolve, adopting innovative teaching methods like the flipped classroom model will be essential in preparing students for the complexities of modern learning environments.
Future research should explore the long-term effects of flipped classroom teaching on student learning and engagement across different subjects and educational contexts. Additionally, further investigation into the specific elements that contribute to student satisfaction and engagement in flipped classrooms can provide valuable insights for optimizing instructional practices.

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Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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