Exploring the Framework and Implementation Efficacy of the FLIPPED-ACTION Model in a College Bilingual-Education Class

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Abstract
Inspired by the FLIPPED model proposed by Chen et al. (2014), which added three more "P" "E" "D" components to the original FLIP model, this research project adds "ACTION" as one more component to make the previous schemata better-rounded. To figure out which component(s) make a significant influence on students' learning motivation and learning strategies, the researcher tracked the student performance records, evaluated surveys, conducted interviews, and utilized the statistical software SPSS to analyze the influences among Flexible environment, Learning culture, Intentional content, Professional educators, Progressive networking learning activities, Engaging and effective learning experiences, Diversified and seamless learning platform; and analyze the relationships between the modified model and the completion of the ACTION modules based on ratings done by the students for their internship.

With 40 participants taking the Bilingual Education and Teaching course in the Department of Teaching Chinese as a Second Language, this study introduces a 20-week empirical study. Surveys are administered to elicit the information and the results show that the FLIPPED-ACTION model promote students' motivation and strategies in every aspect. Moreover the statistical result revealed there is a significant difference between the internship group and non-internship group in the class ($p < .05$), indicating the ACTION part boosts students in adjusting the FLIPPED part better. Meanwhile resistive voices such as "too much workload" and "not used to constant discussions" also exist. This study provides viewpoints in exploring the implementation of the FLIPPED-ACTION model in a college class.

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Introduction

Up to this stage many instructors practice a variety of flipped-learning models mostly in elementary and secondary education, and their models are still under scrutiny for discussions (Ash, 2012; Bretzmann, 2013). Chen, Wang, Kinshuk &Chen (2014) and Hu (2013; 2014) questioned whether the flipped-learning instruction can be applied in the context of higher education. They conducted research and concluded that a flipped-learning model can work efficiently when some components were implemented with modifications. At the undergraduate level, Hu (2014a) suggested that a "staged flipped-classroom course design" can be well-applied to college students who are used to conventional lecture-based instruction. At the graduate-program level, Chen, Wang, Kinshuk &Chen (2014) developed a FLIPPED framework to strength the original widely-promoted FLIP model proposed by Flipped Learning Network and Person's Achievement Services. These studies echoed the gap issues identified by many scholars (Herreid & Schiller, 2013; Kong, 2014; Gardner, 2015). They showed that a better way to "flip" a class has to focus on clear guidelines for course activities, well-connected digital learning platforms, and sufficient numbers of discussions regarding the learners' experiences.[1]

This paper examines if a flipped-learning approach can promote the knowledge-application integration. The FLIPPED model proposed by Chen et al (2014) provides a better common ground when talking about how to "flip" a class for university students, because it takes current higher-education learning patterns into account. The model gives consideration to three important components that the original FLIP schema didn't cover well: the efficiency of activity delivery, the engagement differences among learners, and whether or not the learning platforms were diversified enough.

The author takes the FLIPPED model into a new FLIPPED-ACTION experiment for two reasons, which also serve as the background of this study. First, since the top characteristic of the flipped leaning is a "flexible learning environment", the author plans to "break the classroom boundary" by setting up an APP-enriched bilingual-education platform for the students who participate in this experiment.

Second, a new trend of education is to focus on how instructors guide learners to reflect on experience and apply what they have learned to the real world. The FLIPPED model proposed by Chen et al (2014) is well-interpreted by pointing out the importance of the "E" --- engaging and effective learning experience, but the model and the whole experiment did not emphasize the essence of experience, which is "*action*"! In the department where a semester-long practical training (internship) is the graduation requirements, the author thus proposes the FLIPPED-ACTION model to test if a flipped learning can articulate language education with students' internship better.

This study examines how a trendy pedagogical model can enhance a college class. It covers a course model modified by the author, introduces the rationale behind it, and inspects how each of the components in the model affects the students' learning

[1] What FLIPPED stands for and what FLIP stands for will be introduced in the literature-review section.

motivation, strategies, and the skills during the students' internships.

Literature Review

Trends of Flipped Learning

The ideological movement considers that a flipped classroom is a place where students are expected "to engage with primary material before class, and come prepared to delve more deeply into their meaning" (Ernest, 2014:283). Lage et al. (2000) defined it as "Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa" (p.32). In the USA, the concept is epitomized with a significant step taken by MIT, which operated its OpenCourseWare program in 2001, and successors such as the Khan Academy founded in 2006, Udacity, Coursera, and edX in 2012, all play important roles in promoting the flipped-classroom concept (Bishop & Verleger, 2013). Taking high-school students in Hong Kong as an example, Kong (2014) found that practicing the flipped learning strategy, the students' information literacy and critical-thinking skill improved.

Although the flipped learning is getting attention widely, there are challenges in applying this approach (Stanley, 2013; Gardner, 2015; Cresap, 2015). Stanley (2013) suggested that integrating the teaching with technology is a challenge already, being able to announce the entire framework to students before starting the flipping process somehow is even more challenging; because it requires a lot of preparation. Herreid & Schiller (2013) pointed out that the flipped classroom is "similar to other methods that depend heavily on students preparing outside of class" (P. 63), thus unprepared students may be initially resistant. Moreover, due to the time-consuming fact, crafting great short video lessons is posing big instructional challenges, and all of those video productions are not a guarantee for attracting student viewers. Miller (2012) further explained that when students get more freedom and don't need to listen in the classroom, it doesn't mean students know how to organize their learning automatically.

The four pillars to engage in the flipped learning are: Flexible environment, Learning culture, Intentional content, and Professional educators (Hamdan, McKnight & McKnight, Arfstrom, 2013b). Chen et al (2014) and Hu (2013; 2014) questioned whether the flipped-learning instruction can be applied in the higher education context. Moreover, they echoed the previous studies done by many scholars that the FLIP model exists some inefficiency in terms of comprehensive research foundation, learning platform, and design guidelines (Marshall, 2013; Miller, 2012). By adding three more components, which are: Progressive networking learning activities, Engaging and effective learning experiences, and Diversified and seamless learning platform, Chen et al. (2014) thus developed a FLIPPED framework to strength the original widely-promoted FLIP model proposed by Flipped Learning Network and Person's Achievement Services. Their study shows that applying the three modified components in the teaching process did gain more positive feedback from the adult students. The flipped-learning approach is showing promise but also needs time to see whether it will really stay power (Roehl, Reddy & Shannon, 2013; Egbert, Herman & Chang, 2014; Howard & McLauchlan, 2014; Dix, 2015; Franqueira & Tunnicliff, 2015).

Educational Technology and its Application

Educational technology inspires us to rethink the teaching and learning identities, and it is a must-discuss topic for those who look forward to teaching in next generation learning spaces (Ling & Fraser, 2014). The key approach should be focused on the relationship of co-producers between the instructor and the student. Furthermore, environment-wise, e-learning provides technology, techniques and content, but learners' motivation plays the essential role in the entire learning process (Zhang & Song, 2012).

The effectiveness of e-learning and m-learning is still under inspection. Many gradations of conclusion can be found in cases like experiments done by Zhuang (2009), Hu (2013), and Luo (2014). Yang (2009) proposes the T.R.I.P.E mobile learning model to explain the positive effect brought by mobile devices. Yan (2012) however points out there are limitations regarding the application of the so-far mobile learning, such as issues related to the inconsistency of leaning experience, lack of meta-cognition, restriction of up-loading and down-loading data, high cost, and web security. Recent studies incorporating educational technology with flipped learning models are quite trendy (Granados-Bezi, 2015; Garner, 2015; Tsai, 2014).

The Essence of Practicum and Internship in Tertiary Education

The Ministry of Education in Taiwan has been promoting the policy of blending internship into curriculum and practicum (MOE Enterprise Academy of Information Website, 2015). Successful internship support educators to apply empirical findings on learning in their practice, and help students incorporate knowledge with application to link established concepts to new situations (Yan, Cai & Liu, 2012; Sweitzer & King, 2014).

Consequently more and more educators are doing related studies. Pei (2015) studied how off-campus internship brought positive influence on the interns in terms of course design, expression skill, classroom management, teaching manner, blackboard-handwriting, and teaching source development. Li, Zhang & Song (2014) examined how an English-only practical training was conducted to a group of maritime-affair interns on an assigned boat, and they found out the interns on the boat turned more professional because the boat created a strong learning environment. Liu et al (2014) investigated how vocational interns developed better career maturity when fulfilling internships. Ou & Huang (2012) discussed the influence of students' attitudes on participating in practical training with living-technology education. Chu, Chan & Tiwari (2012) explained how blogs can enhance the quality of internship when using appropriately.

Methodology

Research Method

This mixed-method study aims at confirming, cross-validating, or corroborating findings within a single study, and the results from both data sets were integrated during interpretation to "note the convergence of the findings as a way to strengthen

the knowledge claims of the study" (Creswell, 2003, p. 217). In this class experiment, the author, who is also the instructor of the class, conducted surveys to collect the quantitative and the qualitative data, and conducted action research to support or inspect the data.

The participants are 40 undergraduate students from the department Teaching Chinese as a Second Language, who take the course called Bilingual Education and Teaching. All the enrolled students in the course are divided into a "doing internships"[2] as experimental group and a "not doing internships" as control group. Pre- and post-tests, mid-term and final-exam scores, and surveys are administered to elicit the information about the relationships between the FLIPPED-ACTION implementation and the students' reaction. The concurrent triangulation approach is shown in Figure 1.

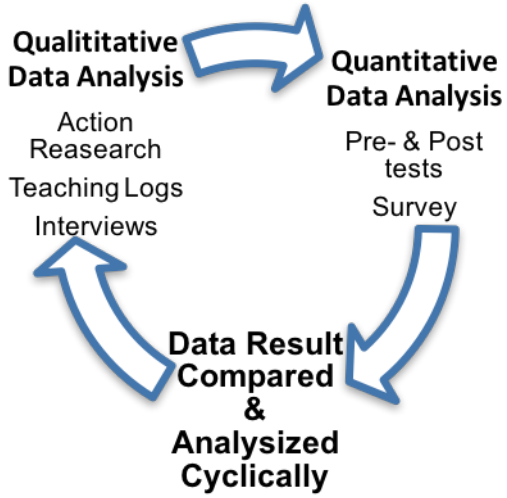

Figure 1. Concurrent triangulation approach (adapted from Creswell, 2003).

As to the action research, in this experiment it means all the FLIPPED-ACTION curriculum-design steps along with the entire semester, including the course framework, syllabus, weekly course instruction, utilization of apps on mobile devices, online assignments/activities supported by the school learning management platform, and email communication, etc. Based on each of the steps, the author observed how the students reacted and what they performed.

The content of the questionnaires all got approved by Research Ethic Committee of National Taiwan University.[3] Regarding the quantitative part, 30 questions in total, the first five are about how the 10 assigned apps affect their learning, and the rest 25 closed-ended questions are about the students learning motivation and strategies, which are divided into sub categories to elicit information related to Flexible environment, Learning culture, Intentional content, Professional educators, Progressive networking learning activities, Engaging and effective learning experiences, Diversified and seamless learning platform, and ACTION (students' internships). As to the qualitative part, there are 10 interview questions designed for volunteer respondents.

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[2] The internship task was to help out 63 local elementary students whose Chinese, mathematics, or English were falling behind; and 18 immigrant adults who wanted to learn mandarin Chinese.

[3] The Ethical Review Approval reference number: NTU-REC 201504ES008

All in a self-administered manner, in the 20-week experimental period, the survey with the same content were conducted twice, one after the midterm exam (week 10), the other after the final exam (week 19). The 10-question interview was conducted one time in the week 20. For the closed-ended questionnaires, all the respondents were asked to answer the questions on a five-point Likert scale. The statistical software SPSS Version 20 was used to analyze the relationships. Below is the concept map of the course design:

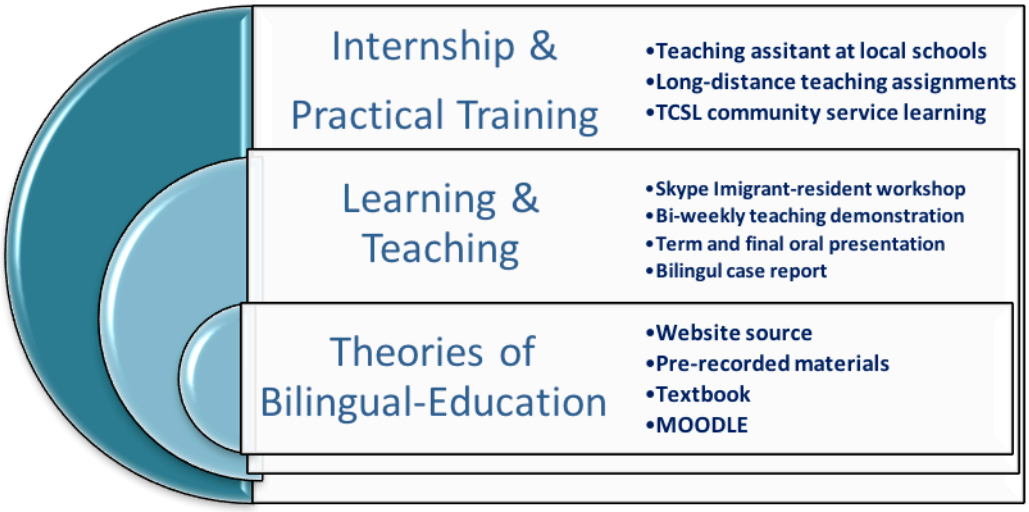

Figure 2. The concept map of the course design

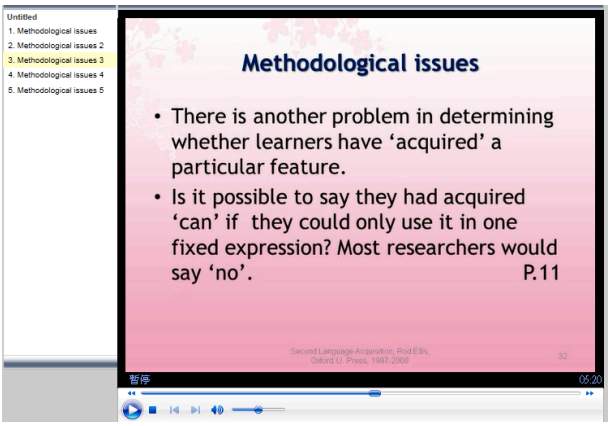

Figure 3. Sample screenshot of a pre-recorded unit

Research Questions

1. Is there any significant difference in students' learning motivation before and after the FLIPPED-ACTION model?
2. Is there any significant difference in students' learning strategies before and after the FLIPPED-ACTION model?
3. What are students' reflections on the FLIPPED-ACTION model?

Data Analysis

Comparison of Students' Learning Motivation and Strategy Before and After the FLIPPED-ACTION Model

The scores of the five-point Likert scale in students' pre- and post-test questionnaires concerning their learning motivation and strategy were analyzed by a paired sample *t*-test, SPSS. A significance level of .05 is used for all statistical tests. Students' learning motivation and strategies before and after the FLIPPED-ACTION model (abbreviated as "FA") are discussed in Table 4, 5, and 6. Among the 25 survey questions, significant differences were found in 14 of the questions ($p < .05$). It indicates that all the eight components of the course design promote the students' learning motivation and strategies.[4]

Table 1
Comparison of Students' Learning Motivation and Strategy Before and After the FLIPPED-ACTION Model (Questions 1.2.4.5.6)

Items	*N*	*M*	*SD*	*t*	*p*
Q1. I expect I will perform well in this class.					
Before FA	40	4.23	0.69	-3.93	
After FA	40	4.61	0.52		.00*
Q2. I believe I understand the fundamental concepts and learning objectives of this class.					
Before FA	40	3.97	0.70	-2.86	
After FA	40	4.26	0.63		.006*
Q4. This is a learner-centered class.					
Before FA	40	4.24	0.52	-3.04	
After FA	40	4.49	0.56		.003*
Q5. Group activities make me want to learn more.					
Before FA	40	3.31	1.02	-4.54	
After FA	40	3.93	0.97		.00*
Q6. The preview and review assignments make me understand the course better.					
Before FA	40	3.41	0.81	-6.10	
After FA	40	4.10	0.76		.00*

Note. *$p < .05$.

Among these five items in Table 4, the top two highest mean differences between the pre- and the post-tests lied on Q5 and Q6. These two items signify that Learning culture, Intentional content, and Engaging learning experience promote learning motivation and strategy.[5]

[4] See Table 2 for the 8 components of FLIPPED-ACTION and the corresponding survey questions.
[5] Because the results of the 14 questions are too long to read in one table, the author presented a 5-5-4 pattern by using three tables.

Table 2
Comparison of Students' Learning Motivation and Strategy Before and After the FLIPPED-ACTION Model (Questions 8. 11. 14. 15. 16)

Items	*N*	*M*	*SD*	*t*	*p*
Q8. I like the challenging parts of the course, so I can learn something new.					
Before FA	40	3.49	0.74	-4.23	.00*
After FA	40	4.00	0.66		
Q11. Maybe I can't get a good score, but I still chose what I think useful and complete them.					
Before FA	40	3.50	0.96	-3.79	.00*
After FA	40	3.99	0.77		
Q14. This is a course with great flexibility.					
Before FA	40	4.00	0.76	-2.52	.014*
After FA	40	4.29	0.76		
Q15. The educational technology/apps used in this course raise my learning motivation.					
Before FA	40	3.97	0.59	-3.50	.001*
After FA	40	4.36	0.64		
Q16. The educational technology/apps used in this course enhance my learning strategies.					
Before FA	40	3.17	0.68	-2.88	.005*
After FA	40	3.56	0.86		

Note. *$p < .05$.

Among these five items in Table 5, the top two highest mean differences between the pre- and the post-tests lied on Q8 and Q11. These two items signify that Progressive learning activities and networking, Diversified platform promote learning motivation and strategy. Moreover, although Q14, 15, 16 didn't reach the highest mean differences, they already met the statistical significance ($p < .05$). It implies that Flexible environment supports the students' learning.

Table 3
Comparison of Students' Learning Motivation and Strategy Before and After the FLIPPED-ACTION Model (Questions 17. 18. 19. 22)

	N	*M*	*SD*	*t*	*p*
Q17. This course enhances my communication skills.					
Before FA	40	3.49	0.74	-4.23	.00*
After FA	40	4.00	0.66		
Q 18. This course enhances my teaching skills.					
Before FA	40	2.97	0.96	-2.22	.029 *
After FA	40	3.30	0.81		
Q19. This course enhances my practical-training/task-execution ability.					
Before FA	40	3.57	0.77	-2.72	.008 *
After FA	40	3.87	0.61		
Q22. I care about the learning activities in this course.					
Before FA	40	3.17	0.68	-2.88	.005*
After FA	40	3.56	0.86		

Note. $*p < .05$.

Among these four items in Table 6, the top one highest mean differences between the pre- and the post-tests lied on Q17. It indicates that **P**rofessional educator contributes a good course design which benefits their communication skills. Furthermore, Q17, 18, and 19, the three questions related to the ACTION component the most, also met the statistical significance ($p < .05$). It signifies that internship support educators to apply empirical findings on learning in their practice, and help students incorporate knowledge with application to link established concepts to new situations (Sweitzer & King, 2014).

Comparison of Students' Learning Motivation and Strategy Between the two Student Groups

One-way analysis of variance (ANOVA), with SPSS version 20.0 was calculated to investigate the differences of learning motivation between the two student groups. Among the total 40 students, 29 completed their internships, and 11 simply took the course and did not choose to do their internships during the course.[6] The valid self-administered questionnaires from the internship group are 29, and 11 from the non-internship group. The category "learning motivation" covers 12 questions, which are out of the 25 survey questions shown in Table 1, including the questions 1, 2, 3, 5, 9-11, 20-22, 24, and 25. Table 7 shows that the statistical result revealed there is a significant difference between the two groups in the response of the variable of the category, which means the internship group has higher learning motivation than the non-internship group has. The hypothesis was rejected at $p< .05$ level.

[6] It is an elective class welcoming all students who are interested in the subject. Therefore completing internship is an optional class activity. Even though the 11 students did not do their internship during the course, still they were assigned to complete tasks in order to fulfill the course requirement.

Table 4
Statistical Result of ANOVA for the Category of Learning Motivation

		Sum of Sq.	df	Mean Sq.	F	Sig.
Learning motivation (12 questions)	**Between Groups**	1.108	1	1.108	4.588	.035*
	Within Groups	19.566	81	.242		
	Total	20.675	82			

*p< .05

The statistical significance regarding the "intentional content" category and "engage experience" are further examined. Table 8 and 9 show that there is a significant difference between the two groups in the response of the variables "This course enhances my communication skills" and "This course enhances my practical-training/task-execution ability." Respondents from the internship group show more positive attitude toward the course design at the p value of 0.027 (p< .05), and 0.048 (p< .05).

Table 5
Statistical Result of ANOVA for the Question 17

		Sum of Sq.	df	Mean Sq.	F	Sig.
This course enhances my communication skills	**Between Groups**	1.224	1	1.224	5.098	.027*
	Within Groups	19.450	81	.240		
	Total	20.675	82			

*p< .05

Table 6
Statistical Result of ANOVA for the Question 19

		Sum of Sq.	df	Mean Sq.	F	Sig.
This course enhances my practical-training/task-execution ability.	**Between Groups**	.976	1	.976	4.015	.048*
	Within Groups	19.698	81	.243		
	Total	20.675	82			

*p< .05

In sum the positive result echoes the previous studies done by Faulkner & Green (2015), Bergmann & Sams (2014), Ernest (2014), Bishop & Verleger (2013), and Chu, Chan & Tiwari (2012). Blending internship into class may be challenging for both teacher and student, but it stimulates students' motivation and somehow "forces" them to come up better strategies when they set up a goal to take the class and complete the internship at the same time.

Qualitative Survey

The result from the qualitative survey also shows some positive signs. Due to the page limit, below are some of the interviewees' opinions:

> "First I found it was difficult because the teacher asked us to present what we studied during each week. Later I realized the spirit of the flipped learning is to 'flip' conventional in-class lectures with collaborative activities." (student A)
>
> "I appreciate what the teacher did for us. The assigned preview assignment was tough because I was not used to it, but later I found it was good for me to manage my time." (student B)
>
> "I didn't expect that I can complete my internship in this class, because we have a lot of assignments. Later I feel I want to learn more because I realized the internship requires better skills in order to complete." (student C)
>
> "The teacher is very professional with a lot of patience." (student D)
>
> "The teacher created an APP-enriched learning environment to boosts the students' mobility. I surprised myself for learning many apps during one semester. It makes the whole implementation more effective." (student E)

From the platform forum, interviews, and class observations, other voices such as too much workload, lack of time to study due to students' part-time job, or poor English proficiency level, are all documented for reference. A few students reflected with problems such as "too complicated to handle", "feeling homework/assignments are around all the time", and "not used to constant discussions".

As to the internship-hosting-school principal and two directors, who served as supervisors, all gave high evaluation to the 29 interns. In the interviews their replies also show that they noticed the interns' improvement along the semester in terms of bilingual teaching know-how, lesson-plan design, group activity management, and teaching attitude.

Conclusion

This study enables academics and institutions to evaluate promising methods, master them, and adapt them to specific learning environments. Moreover, this empirical study is aimed at improving students' bilingual proficiency levels and internship quality, and promoting knowledge-application integration. The author plans to "break the classroom boundary" by setting up a bilingual-education platform for the students who participate in this experiment. The experiment shows that the plan is workable by the teacher and appreciated by the students.

By combining qualitative and quantitative studies with Action Research, the author applies the firsthand teaching to inspect and verify teaching and learning of the newly-modified model, and identifies the effectiveness of the education in a comprehensive university by presenting the positive relationships between up-to-date course design and college students' learning motivation and learning strategies.

"Flipped learning" has been gaining considerable traction around the world. It is "a vast ocean that is ripe for exploration and navigation", and all of the practitioners devoting themselves to the curriculum design act like "seafarers" who "conduct their own exploration and return with an even better map" (Sams, 2013, p. 1). In this study, the developed FLIPPED-ACTION model is purposely designed to continue investigation about flipped learning. Nevertheless, due to the exploratory nature, limited sample size (40 students), and short evaluation period (one pre- and post- test in one semester), this study presents a start-off. More issues on flipped teaching and learning should be discussed along with the development of any newly-evolved model.

References

Ash, K. (2012). Educators view the "Flipped" model with a more critical eye. Education Week, 32(2), S6-S7.

Bergmann, J., & Sams, A. (2014) *Flipped Learning: Gateway to Student Engagement*. International Society for Technology in Education. Retrieved November 22, 2015 from https://books.google.com.tw/books?id=CSzhBgAAQBAJ&printsec=frontcover&dq=Implementation+and+Critical+Assessment+of+the+Flipped+Classroom+Experience&hl=zh-TW&sa=X&redir_esc=y#v=onepage&q=Implementation%20and%20Critical%20Assessment%20of%20the%20Flipped%20Classroom%20Experience&f=false

Berrett, D. (2012). How 'Flipping' the Classroom Can Improve the Traditional Lecture. Retrieved January, 15, 2015 from https://tle.wisc.edu/tleblogs/jhenriqu/how-flipping-classroom-can-improve-traditional-lecture

Bishop J. B. & Verleger, M. A. (2013). *Flipped Classroom: A Survey of the Research*. Retrieved December, 5, 2015 from http://www.asee.org/public/conferences/20/papers/6219/view

Bretzmann, J. (2013). Introduction. In J. Bretzmann (Ed.), *Flipping 2.0 – Practical strategies for flipping your class*, pp. 3-4. New Berlin, USA: The Bretzmann Group.

Chen, Y., Wang, Y., Kinshuk &Chen, N. S. (2014) Is FLIP enough? Or should we use the FLIPPED model instead? *Computer & Education*, 79, 16-27.

Chu, S., Chan, C, & Tiwari, A. (2012). Using blogs to support learning during internship. *Computers & Education*, 58, 3, 989–100.

Cresap, L. (2015). Preparing university for flipped learning. In A. G. Scheg (Ed.) *Implementation and Critical Assessment of the Flipped Classroom Experience (pp. 175-195)*. Hershey, PA: Information Science Reference.

Creswell, J.W. (2003). *Research design: Qualitative and quantitative approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications

Dix, A. (2015). More than one way to flip a class: learning analytics for mixed models of learning. APT 2015, Greenwich, 7th July 2015. Retrieved from August 10, 2015 http://www.hcibook.com/alan/papers/apt2015-more-than-one-way/

Egbert, J., Herman, D. & Chang, A. (2014). To Flip Or Not To Flip? That's Not The Question: Exploring Flipped Instruction in Technology Supported Language Learning Environments. *International Journal of Computer-Assisted Language Learning and Teaching*, 4(2), 1-10.

Ernest, J. L. (2014). Flipping the Constitutional Law Classroom: Engaging First Year Law Students in Active Learning. In J. Keengwe, G. Onchwari & J. Oigara (Eds.)

Promoting Active Learning through the Flipped Classroom Model. Hershey, PA,USA:
Information Science Reference.

Faulkner, T. & Green, J. (2015). The peer instruction flipped learning model. In A. G. Scheg (Ed.) *Implementation and Critical Assessment of the Flipped Classroom Experience (pp. 196-217)*. Hershey, PA: Information Science Reference.

Franqueira, V.N.L. & Tunnicliff, P. (2015). To Flip or Not to Flip: A Critical Interpretive Synthesis of Flipped Teaching. In **U.** Vladimir, **H.** Robert J., **J.** Lakhmi C.
(Eds.) *Smart Education and Smart e-Learning*, Springer eBook, ISBN 978-3-319-19875-0. Pp. 57-67.

Gardner, J. (2015). Flipping the classroom: Challenge of implementation. In A. G. Scheg (Ed.) *Implementation and Critical Assessment of the Flipped Classroom Experience (pp. 157-174)*. Hershey, PA: Information Science Reference.

Granados-Bezi, E. (2015). Strategies to transform the foreign language classroom and increase learning outcome with a flipped model. In A. G. Scheg (Ed.) *Implementation and Critical Assessment of the Flipped Classroom Experience (pp. 60-73)*. Hershey, PA: Information Science Reference.

Hamdan, N., McKnight, P., McKnight, K., & Arfstrom, K. (2013b). A review of flipped learning. Retrieved from the Flipped Learning Network website http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/41/LitReview_FlippedLearning.pdf.

Herreid, C. F. & Schiller, N. A. (2013). *Case Studies and the Flipped Classroom*. Retrieved November, 30, 2015 from http://capone.mtsu.edu/vjm/Univ_Service/CRWG_Home/References/CRWG-SPEE-REF-01.pdf

Howard, T. & McLauchlan, K. (2014). How to "Flip the Classroom": The 411. In M. Searson & M. Ochoa (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2014* (p. 2852). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Hu, Y. C. (2013). The Application of E+M+C Course Design ---Taking the International College Students in Taiwan as an Example. *Proceeding of The 8th International ICICE Conference* (CD). Taipei: OCAC, Republic of China.

Hu, Y. C. (2014). Implementation of Staged Flipped-Classroom Course Design for Taiwanese College Students --- Taking a Second-Language-Acquisition Course as an Example. *Proceeding CD 2014 The international conference on e-Commerce, e-Administration, e-Society, e-Education, or e-Technology*.

Johnson, G. (2012). *The flipped classroom is not…* . Retrieved December 25, 2015 from http://www.youtube.com/watch?v=hGs6ND7a9ac

Kong, S. C. (2014). Developing information literacy and critical thinking skills through domain knowledge learning in digital classrooms: An experience of practicing flipped classroom strategy, *Computer & Education*, 78, 160-173.

Lage, M. J., Platt. G. & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education,* 31(1):30–43.

Ling, P. & Fraser, K. (2014). Pedagogies for next generation learning spaces: theory, context, action. In K. Fraser (ed.) *The Future of learning and teaching in next generation learning spaces, International Perspectives on Higher Education Research,12,* pp.65 – 84.

Miller, A. (2012). Five Best Practices for the Flipped Classroom. *Edutopia*. Retrieved December 5, 2015 from http://ticharter33.org/library/TIarticle36.pdf

MOE (2015). Enterprise academy of information 教育部大專院校校外實習媒合平台 http://eai.nkfust.edu.tw/Job104/index.aspx

Roehl, A., Reddy, S., Shannon, G. (2013). The flipped classroom: An opportunity to engage millennial students through active learning strategies. Journal of Family & Consumer Sciences, 105 (2), 44-49.

Sams, A. (2013). Foreword. In J. Bretzmann (Ed.), *Flipping 2.0 – Practical strategies for flipping your class*, pp. 1-4. New Berlin, USA: The Bretzmann Group.

Stanley, G. (2013). *Language Learning with Technology: Ideas for Integrating Technology in the Classroom*. Cambridge: Cambridge University Press.

Sweitzer, H., King, M. (2014). *The Successful Internship* (4th ed.). Belmont: Brook/Cole Cengage Learning.

李建民、張若瀾、宋紹珍（Li, Zhang & Song）（2014）。基於專用實習船的海上專業全封閉英語教學方案。**航海教育研究** ，1，86-87。

莊雅燕 (Zhuang) (2009)。**混成式行動學習對學童認知負荷與學習成就之影響-以國小鄉土教學為例**。2014 年 11 月 2 日取自 http://140.133.6.46/ETD-db/ETD-search-c/view_etd?URN=etd-0718109-191529

斐雲 (Pei) （2015）。實習支教對師範生教學能力的影響及提高策略——以忻州師範學院為例。**教育理論與實踐** ，6，37-43。

張國恩、宋曜廷（Zhang & Song）(2012)。數位學習品質管理的基本概念。載於張國恩、宋曜廷（編），**數位學習品質管理**（頁 4-23）。台北：高等教育。

楊叔卿 (Yang) (2009)，**行動載具與即時遠距系統的運用：以新竹香山濕地的螃**

蟹研究為案例。2013 年 11 月 2 日取自
http://mail1.tmue.edu.tw/~math/980110-2.pdf

劉芳、羅蹻娥、劉冬瑩、劉斌、周鴻 (Liu et al) （2014）。職業成熟度測定在高職藥學專業頂崗實習教學評價中的應用。**中國高等醫學教育**，12，52-62。

歐姿妤、黃貞觀 (Ou & Huang) (2012)。生活科技結合服務學習課程對護生參與服務學習態度之影響。**長庚科技學刊**，16，71-81。

顏春煌（Yan）(2012)。**數位學習─觀念、方法、實務、設計與實作**（第二版）。台北：碁峯。

羅衛華（Luo）（2014）。大學生智能手機輔助語言學習（SALL）的實證研究。**航海教育研究**， 79-81。

嚴秋蓮、蔡進雄、劉若蘭 (Yan, Cai & Liu)（2012）。服務學習對大學全人教育之啟示。**教育研究月刊**，228，68-80。