

## Suggestions to Support ‘Flipped Learning’ on Stage based on the Survey of Primary and Secondary Teachers’ Recognition

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### Abstract

*Korean current education system, which is immerse in knowledge-based, teacher-centered, ranking-oriented education as seen in Industrial Age, is criticized in that it cannot cultivate creative human resource with integrated competence although it is Information Age now. In order to overcome this current situation, flipped learning is being focused and studied recently, expected to be introduced in 2018. Thus, this study aims to define flipped learning and suggest supporting aids to activate it through the survey of primary and secondary teachers’ recognition so far. For this, 678 teachers of Province ‘A’ participated in the survey including 28 questions separated into 12 parts. Based on the survey, the supporting aids are suggested from the perspective of educational curriculum, evaluation, school culture, administration, finance, surroundings. Conclusively, flipped learning is supposed to prevent from one-way and top-down approaches of Education Ministry but promote Bottom-up approaches based on on-stage teachers’ autonomy. Considering the failure of ‘Open Class’ introduced in 1996 due to the one-way and monotonous implementation, Educational Ministry shouldn’t be more than a facilitator who set the appropriate surroundings where flipped learning can be established in an authentic way.*

**Keywords:** *Flipped learning, creativity and integration, Student-centered instruction, Recognition survey, Supporting aids*

### 1. Introduction

In Industrial age, public education focused on mass-production education, group education, specialization and assembly education, and synchronous standardization education in order to cultivate industrial human resource. However, in Information Age, it is important to focus quality rather than quantity, critical thinking and problem solving rather than rote learning, the competence of cooperation, communication, creativity, global cultural understanding rather than competition.

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Korean current education, however, reveals the worst rate of children's and teenagers' happiness index, academic stress, educational expenses, and youth suicide and smoking in OECD. That is, Korean students are likely to get stressed via studying the most in the most boring way, which let people doubt if it is expected to establish a model which can guarantee its quality.

In order to solve this problematic situation, Education Ministry revised the curriculum in 2015. It states that core competence should lie on self-management, information-processing, creativity, aesthetic sense, communication, and membership through the overall school curriculum, thereby cultivating independent, creative, refined, and cooperative human resource. Also, Education Ministry has promoted 'morality-focused education' rather than knowledge delivery as a major government project (66-1) so that students can get opportunities to experience on their own and consider others since June, 2013. From 2016, 'classroom development plans through improving teachers' expertise' has been promoted as a state policy according to the revised curriculum of 2015. 'Flipped learning' has been focused and studied as one of the methodologies to innovate classroom instruction. Flipped learning prevents from the traditional approach: teacher-centered and knowledge delivery education. Rather, it utilizes student-centered lessons, improves relationships between teachers and students through individual instructions, and promotes active communications and cooperative learning, aiming at the change of educational paradigm at the moment. In addition, Education Ministry stated 'flipped learning' would be introduced in on-stage schools in 2018. Goals of the revised curriculum of 2015 are expected to be realized with the help of flipped learning: paradigm changes, teachers' recognition, and practical teaching. Therefore, this study aims to discover the meaning of flipped learning and supporting methodologies to activate it.

## **2. Theoretical backgrounds**

### **2.1. Flipped learning**

Flipped learning originated from the problem which appeared in the classroom; J. Bergmann and A. Sams taught chemistry in a high school in Woodland Park, Colorado in 2016. They happened to know that some students who were absent several times due to many club activities had difficulties following the class.

Besides, there were many students who had difficulties following lessons, parsing knowledge, and competing assignments. The teachers recorded all the content of lessons, had their students watch it before the class, and guided them to understand what they had not understood in the class, which is the beginning of flipped learning.

Flipped learning denotes to literally 'flipping' the place where students study. Students study the recordings of what they plan to learn in the class before, whereby they can get opportunities to learn through various activities. They have get enough time to understand the basic concept and they apply and elaborate it with teachers and peers in the class.

### **2.2. Flipped learning models**

Flipped learning aims to help students to study the fundamental factors via educational technologies individually, offer opportunities to study in various activities, and establish the system where teachers and students can form meaningful relationships which lead to expanded learning. Reinhardt (2014) suggested an educational theory which flipped learning is based on as seen in [Figure 1].

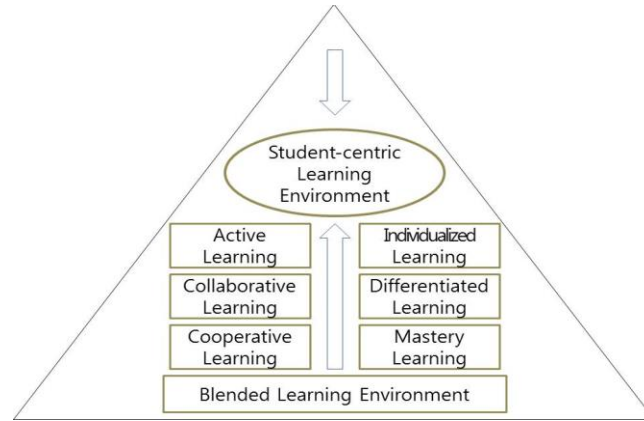


Figure 1. Flipped learning theory

Flipped learning focuses on establishing Student-centric Learning Environment where students can realize their needs, interest, and autonomy. For this, 'Active Learning', 'Individualized Learning', 'Collaborative Learning', 'Differentiated Learning', 'Cooperative Learning', and 'Mastery Learning' can be applied. Also, 'Blended Learning' can attract students' interest.

### 2.3. Core factors of flipped learning

Bergmann and Sams (2015) described 7 core factors which lead to successful flipped learning in the class.

First one is cooperation. Flipped learning is barely realized by only one teacher. The teachers who accomplished successful flipped learning cooperated with their group members. Due to the active networks, they could experience the success. Also, SNS such as Twitter reinforced the networks.

Second one is student-centered learning. There remain some students who cannot participate in the class, regardless of the level of the teacher. The classroom is expected to be the right place where student can learn from their perspectives when the teacher is assigned the role of facilitator, not that of knowledge deliverer.

Third one is the optimized classroom. There exist no established ways to offer student-centered classroom, but to offer the place where students can be motivated to cooperate and concentrate without interruptions and to reinforce student-centered class and learning rather than teaching are generally applied.

Fourth one is enough time for attempts. Students need much time to try new teaching-learning strategies. Teachers should learn new techniques and procedures rather than solely contemplate their teaching methodologies.

Fifth one is the support of supervisors. Supervisors should support it in order to lead teachers in an innovative way.

Sixth one is the support of Education Ministry. The support is required in that students need ubiquitous environment where they can approach the recordings of lessons whenever they want. It would be beneficial if IT experts develop simple work-flow by which teachers can develop and share the recordings or other lesson materials.

Last one is reflection. The teachers who develop their competence are likely to reflect their own lessons. They attempt to find out how to revise their lessons. In other words, they

continuously change and modify their teaching methodologies, based on realization that there is not only one way to establish flipped learning.

### 3. Methods and procedures of the recognition on flipped learning survey

#### 3.1. Subject

581 of 678 Primary and secondary teachers in Province A answered the questionnaires. 75% of them are valid. Since this study aims to investigate teachers' recognition based on flipped learning, 105 teachers who answered 'I don't know about flipped learning' were excluded in statistics. Finally, the recognition of 401 teachers are processed as data. 80% of them have not experienced flipped learning whereas 75% of them want to try it.

#### 3.2. Instrument

This study aims to discover on-stage supporting aids for flipped learning, based on the recognition of primary and secondary teachers. Thus, the survey questionnaires consist of 28 questions in 12 parts according to the documents of Beromann & Sams (2013, 2015) Future Classroom Network (2015), 정형권, 이혁규, EBS. Its Cronbach  $\alpha$  rate is .87 which guarantees meaningful reliability. It is statistically processed via SPSS 23.0.

Table 1. Major and sub parts for flipped learning recognition investigation

Major part	Sub part	No.	Major part	Sub part	No.
Understanding concepts	Video lectures	1.	Understanding concepts	Methodology flip	3.
	Digital environment	2.		Quality flip	4.
Understanding concepts	Teaching rights	5.	Utilizing IT facilities	Smart tools	7.
	Task time	6.		SNS	8.
Video media application	Development	9.	Communication and Cooperation	Network connection	11.
	Task	10.		Training attendance	12.
Meaning and Relationship	Meaning formulation	13.	Student-centered instruction	Learning participation	15.
	T-S interaction	14.		Self-management	16.
Learning and Growth	Grade improvement	17.	Individualized learning	Progress	19.
	Peer relationship	18.		Individual aids	20.
Mastery learning	Learning competence	21.	Other effects	Private lessons	23.
	Technology	22.		Burden decrease	24.
Environment	Facility(Policy)	25.	Prospect	Stability on stage	27.
	Teachers' community	26.		Changeability	28.

### 4. Analysis on the survey result

According to method of summated ratings, the recognition is analyzed as three parts: positive, neutral, and negative. The results are seen in [Figure 2].

6 questions reveal more than 60% positive answers: Utilizing IT facilities (smart tools), video media application (task), communication and cooperation (training attendance), learning and growth (grade improvement) 6 questions reveal more than 60% positive answers: understanding the concept (quality flip), aiming at meaning and relationship (meaning formulation and teacher-student interaction), student-centered instruction (learning participation), environment (facility and policy) 2 questions reveal more than 60% positive

answers: video media application (development), environment (teachers' community) 7 questions reveal more than 20% negative answers: understanding concepts (video lectures, methodology flip, teaching right, task time), utilizing IT facilities(SNS), other effects(lessening private lessons, decreasing teachers' burden) The result is illustrated as the following.

First, when it comes to understanding the concept, as seen in <Figure 2>, 25.9% of the teachers recognize the recordings of class are the core of flipped learning, whereas 39.9 of them do not so. 48.4% of them think that students who hardly contact IT facilities are deprived of learning rights, whereas 24.7% of them do not so. Also, 35.9% of them think recording the video file needs more time and unnecessary assignments are given, whereas 26.9% of them do not agree on it. It means that understanding is not biased but not completely understood.

However, 52.1% and 76.8% of the teachers answered positively on methodology flip and quality flip each. It means that 52.1% of the teachers recognize 'flipped' as the shift of methodology where students study before the class and do the homework in the class. On the contrary, 76.8% teachers recognize 'flipped' as the shift of quality where students can take the hegemony rather than teachers. This result implies that teachers understand the concept of flipped learning but they still have to acquire it via getting interested in it and experiencing it on their own.

Secondly, the teachers displayed positive recognition on the crucial factors of flipped learning: 65.6% for communication and cooperation, 75.6% for meaningful relationships, 75.6% for student-activity centric instruction, 62.6% for learning and growth, and 68.6% for individualized learning. It suggests that teachers realize the core value of flipped learning overall and it can be applied potentially.

Table 2. Analysis of flipped learning recognition investigation

Major part	Sub part	Question	Category	Positive	Neutral	Negative	total
Understanding concepts	Video lectures	1.	frequency	104	137	160	401
			%	25.9	34.2	39.9	100
	Digital environment	2.	frequency	205	130	66	401
			%	51.1	32.4	16.5	100
	Methodology flip	3.	frequency	209	95	97	401
			%	52.1	23.7	24.2	100
	Quality flip	4.	frequency	308	65	28	401
			%	76.8	16.2	7.0	100

Major part	Sub part	Question	Category	Positive	Neutral	Negative	total
Understanding concepts	Teaching rights	5.	frequency	194	108	99	401
			%	48.4	26.9	24.7	100
	Task time	6.	frequency	144	149	108	401
			%	35.9	37.2	26.9	100
Utilizing ICT facilities	Smart tools	7.	frequency	267	95	39	401
			%	66.6	23.7	9.7	100
	SNS	8.	frequency	219	84	98	401
			%	54.7	20.9	24.4	100
Video	Developmen	9.	frequency	326	60	15	401

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media application	t		%	81.3	15.0	3.7	100
	Task	10.	frequency	248	120	33	401
Communication and cooperation	Network connection	11.	%	61.8	29.9	8.3	100
			frequency	237	108	56	401
	Training Attendance	12.	%	59.1	26.9	14.0	100
			frequency	263	93	45	401
Meaning and relationship	Meaning formulation	13.	%	65.6	23.2	11.2	100
			frequency	282	97	22	401
	Teacher-student interaction	14.	%	70.3	24.2	5.5	100
			frequency	303	77	21	401
Student-centered instruction	Learning participation	15.	%	75.6	19.2	5.2	100
			frequency	303	88	10	401
	Self-management	16.	%	73.6	21.9	4.5	100
			frequency	295	88	18	401
Learning and growth	Grade improvement	17.	%	62.6	30.2	7.2	100
			frequency	251	121	29	401
	Peer relationship	18.	%	47.6	37.4	15.0	100
			frequency	191	150	60	401
Individualized learning	Progress	19.	%	65.3	27.9	6.8	100
			frequency	262	112	27	401
	Individual aids	20.	%	68.6	25.9	5.5	100
			frequency	275	104	22	401
Mastery learning	Learning Competence	21.	%	54.6	34.9	10.5	100
			frequency	219	140	42	401
	Technology	22.	%	47.1	38.2	14.7	100
			frequency	189	153	59	401
Other effects	Private lessons	23.	%	37.4	34.4	28.2	100
			frequency	150	138	113	401
	Burden decrease	24.	%	34.9	34.2	30.9	100
			frequency	140	137	124	401

Environment	Facility(Policy)	25.	%	75.3	20.5	4.2	100
			frequency	302	82	17	401
	Teachers' community	26.	%	83.8	14.7	1.5	100
			frequency	336	59	6	401
Prospect	Stability	27.	%	45.6	40.4	14.0	100
			frequency	183	162	56	401
	Changeability	28.	%	39.4	41.6	19.0	100
			frequency	158	167	76	401

Third, positive responses appeared in required time to prepare the recording every class as 81.3% and concerns of students who do not see the recording before as 61.8%. For this, supporting materials should be guided and shared and appropriate training coursework and SW offer for developing video files or utilizing SNS should be required. The teachers responded positively on students' use of smart tools in the class but only 54.7% of them manage the communicative website for each class. Current Wi-Fi environment should be improved and IT facilities, sharing Apps, and platforms should be supported at the moment.

Fourth, 65.6% of the responses display teachers' willingness to attend training coursework or workshop for flipped learning. Its 75.3% reveals that classroom facilities, evaluation and entrance system, syllabus, and curriculum need changes. Also, continuous tailor-made supports is required as seen in 83.8% of the responses on needs of active supports by supervisors, parents and school administration.

Fifth, the neutral responses on the prospect if flipped learning solves Korean educational problems. But, the negative ones appear as 28.2% pertained to decreasing the private lessons. It is because only 20.2% of teachers have attempted to apply flipped learning, whereby they are not likely to expect it to be a direct solution for educational problems.

Sixth, 34.9% of the responses displays teachers positive attitude toward the possibility that flipped learning can let them teach in an easier way through declining their repetitive lessons and tasks whereas the negative ones remain as 30.9% which is the highest in the survey. It denotes that teachers do not expect teaching is not essentially easy work but requires constant efforts, which can be supported via groups such as studying communities, club activities.

#### **4. Conclusion**

Based on the result of the survey of primary and secondary teachers' recognition of flipped learning, supporting aids are suggested in each part 'Curriculum and Evaluation', 'School culture', 'Administration and Finance', and 'Environment' as the following.

To begin, the part 'Curriculum and Evaluation' can be assisted in the following way. First, flipped learning is not a just technique but includes the change of educational paradigm. Hence, teachers' understanding of curriculum should be improved and their autonomy in the overall educational activities should be extended, thereby letting teachers and students develop themselves together. Second, process-oriented and descriptive evaluation should be expanded rather than standardized evaluation. At the same time, individualized, criterion-referenced, and multidimensional evaluation are expected to be applied. Teachers' rights of assessment, besides, should be reinforced. These changes would cause flipped learning to be activated and settled. Third, connections between each class should be reinforced through block-time class in order to realize various learner-centered activities. Also, the factors of each school, teacher, and student should be considered to manage the curriculum in a flexible way. Fourth, contextually appropriate reconstruction of curriculum via project works and problem-based learning is required as well as the method and consistency of teaching-learning and evaluation so that it can cultivate the futuristic competence which flipped learning aims at.

When it comes to the part 'school culture', each teacher's autonomy remains more important rather than supervisors' leadership or initiatives. For this, supervisors who are assigned a huge role in each school had better support and motivate autonomous teachers applying flipped learning with the help of in-depth understanding. Within flipped learning, every class is supposed to have a different form, which means that it has to be respected, not judged by traditional approaches. Thus, Education Ministry is supposed to develop 'Expert

Flipped Learning Supporting Teams' or 'on-stage studying communities in each school' rather than model teachers or consultants.

Having to do with administrative and financial parts, flipped learning ought to assure its equity and accessibility. For this, the lesson video files function as 'assistant', which means that each student's ICT environment should be monitored and the students who have low digital literacy, low participation, and low supports from family should be supported. Also, teachers should get opportunities to attend relevant training or studies and the IT facilities and surroundings such as Wi-Fi, external cloud system contact, online communication tools should be provided.

Conclusively, flipped learning must prevent from the one-way and top-down approach of Education Ministry but aim at on-stage teachers' autonomy, motivation, and bottom-up approach. Education Ministry is supposed to contemplate the failure of 'open class' introduced in 1996 and to be no more than a facilitator, which leads to flipped learning's settlement in an authentic way.

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