

# Flipping Business Education: Transformative Use of Team-Based Learning in Human Resource Management Classrooms

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## ABSTRACT

With the globalization of macro-economic environments, it is important to think about how to use instructional design and web-based digital technologies to enhance students' self-paced learning, stir up learning motivation and enjoyment, build up knowledge-sharing channels, and enhance individual learning. This study experimented with the flipped learning course modules which are grounded in the theory of team-based learning (TBL), in which students participated in the preview activities before class, performed in-class activities, and took part in after-class online discussion via modularized assignments. Two Human Resource Management classes, consisting of 104 students and two professors from two Taiwanese universities, participated in this study. Mixed research methods including surveys and interviews, were used to collect both quantitative and qualitative data. The results show the positive relationships among the students' perceived team members' valuable contributions, motivation, enjoyment, and learning outcomes. The research findings and implications will provide business education faculty, researchers and decision-makers with ideas and insights on the application of flipped-classroom team-based learning modules.

## Keywords

Business education, Flipped classroom, Team-based learning, Mixed methods

## Introduction

With the developing phenomenon of globalization, advances in information technology, and managerial innovation, the boundaries, scope, and concerns of business education have broadened its horizons (Escobar-Rodriguez & Monge-Lozano, 2012). As they are undergoing a globalization process, higher education institutes worldwide are seeking new business curriculum design which is aligned with the needs of contemporary teaching and learning as well as with the competencies and protocols of workplaces (Avis, Fisher, & Thompson, 2014; Conrad & Dunek, 2012). As the curriculum is highly influenced by its social, economic, and cultural environment, the abilities to look for necessary information, share knowledge, and work collaboratively with others for problem solving in teamwork are particularly desired. Thus, universities nowadays are expected to, and have an urgent need to provide transitional education that highlight these issues and help students face today's complex changing world (Pellegrino & Hilton, 2013).

In today's digital age, it is clear that not only is the creation of curriculum innovation and structures important, but it is also evident that so is the way we deliver course content. The transformation of curriculum design makes a difference regarding learners' acquisition of relevant knowledge, competence, skills and other characteristics (Beetham & Sharpe, 2013) for applying to their professional work domains. Business schools that have incentive schemes using the new pedagogical concept known as a flipped approach and web technology intensively have become more innovation-oriented in order to exhibit much higher incidences of structured training across various coursework (Butt, 2014; Findlay-Thompson & Mombourquette, 2014; O'Flaherty & Phillips, 2015). The purposes of flipping the younger generation's learning attitudes and habits, as well as linking education closer to the world of work, is of great significance in educational practice (Bergmann & Sams, 2014; Berrett, 2012). In this study, we are concerned about business education in Human Resource Management (HRM) because quality courses provide opportunities for students to conceptualize relevant topics in the evolving functions of HRM within today's organizations and business environment.

To achieve this goal, we propose an instructional design grounded in team-based learning in a flipped learning scenario, which provides students with valuable opportunities for quality learning. The expected benefits to learners who participated in this approach include promoting student-centered learning and collaboration, as well as improving their engagement in their own education and learning achievement. This article first assesses the advantages and limitations of the existing flipped classroom and the rationale for incorporating of team-based learning in business training and development from the perspective of HRM curriculum design, development and assessment. We intend to flip students' learning in HRM, with the hope of constructing their learning experience in a way that will be conducive for workplaces and also for society as a whole. Experimenting with innovative business curriculum in HRM helps facilitate integrated growth of business students through meaningful and

interactive activities in a flipped learning fashion. This study aims to provide visibility of curriculum design, implementation and assessment and to enable more evidence-based educational research toward a better understanding of how students learn and how they engage in the course.

## **Flipped classrooms overview**

### **Pedagogical practice**

Traditionally, in order to facilitate large-class communication, most courses are transmitted in a lecture approach so as to deliver relevant course content that allows the instructor to precisely determine the aims, content, organization, pace and direction of a presentation (Struyven, Dochy, & Janssens, 2010). In planning to transform the pedagogical paradigm and practice, the impact of training of university teachers on their teaching skills and their approach to teaching, as well as to the learning guidance of their students cannot be overlooked and thereby should be taken into account (Postareff, Lindblom-Ylänne, & Nevgi, 2007). In essence, flipping a classroom is a form of blended learning through which students learn content online by watching video lectures, usually outside the classrooms, and homework is finished in class with teachers and students discussing and solving questions (Strauss, 2012). Teacher interaction with students is more personalized, and interactive guidance is used instead of one-way directional lecturing (Bergmann & Sams, 2012).

In traditional classrooms, course content is presented in a lecture format with the instructor conveying factual or procedural type of knowledge and information to students in a face-to-face instructional fashion. Presumably, in this learning model, students take a passive role during the face-to-face session (Xie, Debacker, & Ferguson, 2006). In terms of homework assignments, students are expected to apply the information they receive in class to similar or higher cognitive level problem-solving situations or tasks of practice. Classroom instructors have little time to facilitate and help each individual learner and meanwhile, students have no one to turn to for future assistance after they leave the classroom. While listening to lectures and taking tests in class, the traditional pattern of teaching has been implemented in a way to assign students to read textbooks and work on problem sets outside school. Nonetheless, to help students master the learning materials at their readiness level, flipped learning does what it conceptualizes through utilizing technology to deliver subject content knowledge in multiple formats as students work through the designed activities (Fulton, 2012b).

In flipped learning, teachers intend to transform lecture content to homework, which can literally free up valuable class time to generate more active learning and higher-level cognitive tasks (Kennedy, 2012; Roehl, Reddy, & Shannon, 2013). Most teachers who use the flipped approach create video of approximately 10-15 minutes in duration; the format may consist of images, video, narration and interactive manipulatives (Smith & McDonald, 2013; Tucker, 2012). Students first study the topic by themselves, typically using video lessons prepared by the teacher or third parties. That is, students view recorded tutorials or lectures at home, freeing up limited class time for more active learning work and strategies. Online sharing and collaboration among flipped teaching learners are breaking barriers to help students learn the content, increase self-efficacy and construct learning experience through the materials created (Enfield, 2013). This revolutionary instructional design granted educators, who were thrilled about the possibility of creating learning environments conducive to promote individualized and personalized learning, an opportunity to adopt student learning needs as the driver of instruction (Fulton, 2012a). Regardless of what one names it, flipped teaching, learning or inverted classrooms, the major instructional principles behind this form of blended instruction are drawing more attention from education teachers and leaders around the world. By reversing the sequence of instruction, innovative educators are making a change in the way students learn to in order to ensure better use of class time for active and mastery learning.

### **Learning environment and dynamics**

Flipped teaching shifts the focus of learning from a teacher-centered to student-centered paradigm, which affirms the effect of self efficacy and self-regulation (Kuiper, Carver, Posner, & Everson, 2015; McLaughlin et al., 2014). A great amount of studies have indicated that active learning promotes student engagement, satisfaction and achievement (Armbruster, Patel, Johnson, & Weiss, 2009; Tune, Sturek, & Basile, 2013). A flipped classroom is an instructional model that makes master learning manageable and sustainable for a large group of students (Bergmann & Sams, 2012) because students work through a self-facilitated trajectory of curriculum design and improvement in predetermined targeted knowledge construction, competence and work skills. In terms of the pedagogical adoption of flipped classrooms, relevant studies have showed various applications of

the flipping approach (Bull, Ferster, & Kjellstrom, 2012; Herreid & Schiller, 2013; Zhang, Wang, & Zhang, 2012). A simple flip is the most basic level—it is characterized by using online videos, digital textbooks or other forms of media to move lecture materials to a home-based learning environment (Nielsen, 2012). After chunking and separating what might have been a long lecture into a much shorter video, students will be asked to cover the teacher-provided materials on their own and kept track of questions and concerns on which they need clarification.

Face-to-face class time can be used to complete follow-up assignments as students come to class, having the pre-class materials prepared. The purpose of switching up homework assignments and class time is to provide more assistance as students demonstrate a lack of understanding and practice the skills set up from the course objectives. Teachers who aim to maximize face-to-face time can incorporate activities whose learning strategies promote higher-order thinking, social learning and 21st century skills (Galway, Corbett, Takaro, Tairyan, & Frank, 2014). Experienced teachers could take full advantage of the online delivery of lecture materials and implement master-level learning in which a student is accountable for operating both the group and individual tasks (Ash, 2012). Typically, managing a flipped mastery classroom requires teachers to deliver course information, assignment, and assessment through a course management system. The advantages of offering online access to content in a self-paced learning environment are that learners can access the information at their own pace and continually reference recorded material homework. The implementation of flipping changes teachers' roles from that of "sage on the stage" to one of "guide on the side", allowing them to work with individuals or groups of students throughout the session (Hughes, 2012). Flipping changes the allocation of teacher time. Instead of imparting the initial lesson in person, the teacher tutors the students when they are stuck via complementary techniques, such as differentiated instruction and project-based learning.

In conclusion, flipped learning involves the lower levels of learning in Bloom's taxonomy (Bloom, Engelhart, Furst, & Hill, & Krathwohl, 1956; Anderson et al, 2001), in which remembering and understanding take place outside the classroom at the student's own pace, as well as the higher levels of learning in applying, analyzing, evaluating and creating. It accomplishes this by having the instructor serve as a guide in the class (Sarawagi, 2013), taking into the consideration of the cognitive processes that students undergo while working with knowledge. The pre-class preparation helps students clarify their thinking about the course subject, while in-class assignments facilitate rich learning interchange and reciprocal feedback. Students assimilate the knowledge by solving problems and doing application work in class, such as data analysis, discussions, debates, or synthesis activities (Kong, 2014). Students learn by doing and asking questions help both the instructor and the student assess understanding. Flipped classrooms free class time for hands-on work and allow students to gain first-exposure learning prior to class. During the class, students manage to help each other as well, a process-oriented model that benefits both the advanced and less advanced learners.

### **Team-based learning**

Team-based learning (TBL) is a type of instructional strategy that helps organize students and place them in their assigned teams based on their skill sets and backgrounds (Michaelsen & Sweet, 2011; Parmelee & Hudes, 2012; Sisk, 2011). Originally a practice in medical and business domains, TBL was further adopted and extended into classroom practice and use (Gomez, Wu, & Passerini, 2009). TBL is a kind of structured small-group learning that promotes student preparation out of class and application of knowledge, skills, abilities and other characteristics in class. Students are strategically grouped into varied teams of 4-7 students based on the learning purposes, and they work collaboratively throughout the coursework. (Michaelsen, Knight, & Fink, 2002) Students preview their predetermined assignments and prepare the needed materials before each unit or module of the course. Consequently, small and structured student teams work together for the entire semester in TBL environments, utilizing class time to discuss reading assignments and apply concepts for problem solving, either individually or collectively (Michaelsen & Sweet, 2008; Parmelee & Michaelsen, 2010). In business courses in higher education, the incorporation of TBL is critical to develop students' abilities and skills and help them better understand their business professions, organizational behaviors, and career development, while many tasks and projects are performed through the contributions of the team members via knowledge sharing, information and opinion exchange (Boud, Cohen, & Sampson, 2014).

Regarding the philosophy of course design, TBL is an alternative to lecturing in large class settings. TBL can not only transform traditional content with application and problem solving skills, but it can also reinforce the opportunities for learning how to learn, work, interact, and collaborate in a team for accomplishing the required work (Engeström, 1999; Parmelee, Michaelsen, Cook, & Hudes, 2012). TBL shifts the focus away from reducing the amount of traditional classroom lecturing by the professor to increasing the in-class or out-of-the-class

participation and application by student groups (Gregory & Thorley, 2013). To facilitate such instructional design formats, course materials are divided into units or modules while the students are split into teams. There is little lecturing, with the instructor taking the role of a facilitator of teams that are formed at the start of the semester. Most of the learning experiences occur when working in a team during in-class or out-of class interactions (Michaelsen, et al., 2002). Many schools have adopted some version of TBL due to several of the benefits listed above, and they have found that this kind of design, either on-site or on-line, is conducive to greater long-term knowledge acquisition and retention, as compared to a traditional passive-oriented lecture curriculum (Hwang, Singh, & Argote, 2015; Lee & Lim, 2012; Zhu, 2012).

Based on the aforementioned principles and guidelines, TBL promotes active learning, participation and engagement from individual and group levels (Conway, Johnson, & Ripley, 2010). Implementing traditional face-to-face TBL approaches, nevertheless, requires several prerequisite preparations in order to overcome the challenges (Gomez, Wu, & Passerini, 2010). Also, the amount of time spent on guiding the rules for students' grouping and readiness in their interactions as well as the time needed from the instructor to explain and clarify learning content and materials in different in-class activities and inter-team dialogues (Jahng & Bullen, 2012). On the other hand, web-mediated technologies resolve the constraints of time and space and support better classroom management practices, since many activities can be executed synchronously or asynchronously at the student's own pace in a team learning context (Hew & Cheung, 2012). Taking advantage of extending the classroom activities to online space, students can have unlimited access to materials and opportunities to discuss the assigned topics with their team members, thus leading to better consolidated learning outcomes (Salmon, 2012, 2013).

### **Instructional design of flipped-classroom TBL**

HRM is one of the fundamental courses for undergraduate business and management majors. In a regular HRM course, students are assumed to obtain the ability to evaluate and apply theories of managerial and social science disciplines to workplace issues (Coetzer & Sitlington, 2014). In addition to the building of basic knowledge, students are expected to acquire relevant strategic HRM functional capabilities used to select, develop, and motivate workers as well as cultivate their own analytical, communication, and decision making skills (Beer, 2015). Nonetheless, traditional lecture- and exam-based HRM courses lack this common practice and integrative design, in which students can take the full responsibilities in developing these targeted learning goals and outcomes. In higher education, there has been a lack of empirical studies on flipped-classroom TBL in college level HRM. Situating team-based learning in flipped classrooms, we intended to create more opportunities for students to practice the knowledge and skills through a structured but flexible framework that provides pre-class, in-class, and post-class learning activities. Students explore teamwork and solve scenario- and case-oriented problems by engaging themselves in a process of negotiation and contributing to the provision of constructive feedback to other team members.

The objectives of the course are to provide students with basic understanding of human resource functions, strategic philosophy and the possible organizational roles as business partners, learning specialists, professional specialists, project managers and corporate social responsibility practitioners (Davis, Naughton, & Rothwell, 2004; Jamali, El Dirani, & Harwood, 2015; Lin & Huang, 2015). The design of establishing fixed teams to function as dynamic learning cohorts allows students to develop their capabilities and competencies needed to fulfill responsibility and surmount the possible challenges and emerging issues in the changing business world (Lin, Huang, & Liang, 2015; Huang, Lin, & Kuo, 2015). Thus, this present study sets out to flip the classroom for HRM learners in the TBL format at two universities in Taiwan to better explore its instructional design, examine pedagogical potentiality and contribute to the growing body of research based on the variables explored. The instructional design of this flipped-classroom TBL (FC-TBL) is centered on the philosophy of the constructivist paradigm that encourages students to take an active from a passive role and contribute to developing their own knowledge and information seeking process (Jonassen & Land, 2012).

Table 1 illustrates the different learning phases of FC-TBL design, pre-class, in-class and post-class modules, which formulate the coherent themes within the HRM course. The pre-class module requires individual preparation including the selected videos, cases and assignments to be completed. The main purpose is to help students review class- related materials and share ideas and notes within the team.

Table 1. FC-TBL learning phases per module

Module and activity	Materials and assignments
<p><b>Pre-class</b></p> <ol style="list-style-type: none"> <li>1. Instructor assigns videos or reading materials about the chapters' topics for students to preview through online forum. Videos remain online for consultation through the course.</li> <li>2. Students watch the videos and take notes individually.</li> <li>3. Students share their ideas, thoughts, and notes about the topics on team.</li> <li>4. Teams summarize the key points of videos or reading materials.</li> <li>5. Students and teams are well-prepared before the class meetings.</li> </ol>	<ul style="list-style-type: none"> <li>•English videos (10 minutes)</li> <li>•Chinese videos (30 minutes)</li> <li>•Business cases</li> <li>•Write individual job resume</li> <li>•Write job description</li> </ul>
<p><b>In-class</b></p> <ol style="list-style-type: none"> <li>1. Instructor leads case discussion and group presentations.</li> <li>2. Students share their ideas, thoughts, and notes about the topics on team.</li> <li>3. Teams synthesize and organize ideas and present.</li> <li>4. Watch movies and group discussion.</li> <li>5. Individuals interview and group interview.</li> <li>6. Teamwork and role play</li> <li>7. Teams interview people on campus</li> <li>8. Instructors assign readings and team homework</li> <li>9. Instructors facilitate and wrap up.</li> </ol>	<ul style="list-style-type: none"> <li>•Reading materials</li> <li>•Textbooks</li> <li>•Movie or video clips</li> <li>•Posters and markers</li> </ul>
<p><b>Post-class</b></p> <ol style="list-style-type: none"> <li>1. Teams discuss assigned readings and homework.</li> <li>2. Teams work on written paper.</li> <li>3. Individuals have discussion on topics in online forum.</li> <li>4. Teams interview human resource managers.</li> </ol>	<ul style="list-style-type: none"> <li>•Reading materials</li> <li>•Reference books</li> </ul>

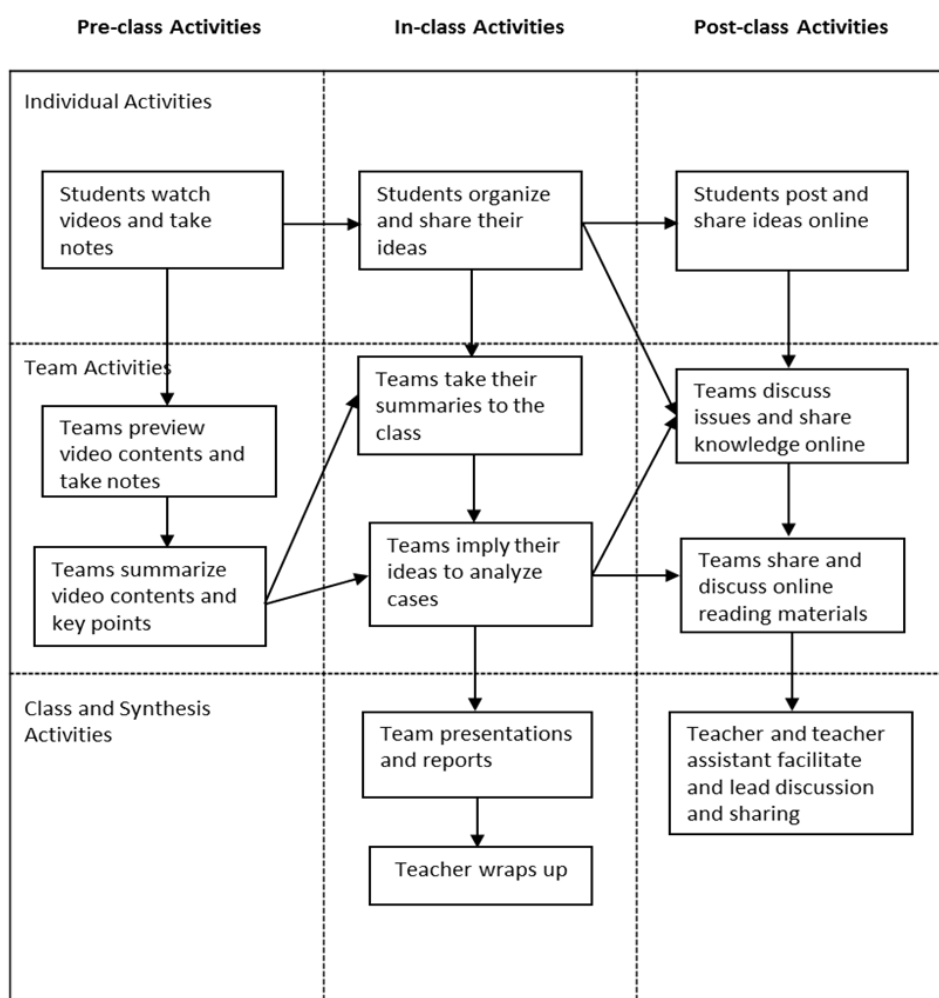


Figure 1. FC-TBL activities

After the pre-class module, students rotate on a predetermined fixed schedule between the in-class module and post-class module. The in-class module consists of teacher-guided activities that require students to apply the concepts of knowledge and information previously gained from the pre-class exercise, as well as to perform a task or solve a problem in a new situation. In the post-class module, students are exposed to different Facebook-supported online discussions or projects, in order to integrate the course chapter materials as end-of-the-unit assessments. That is, students manage to engage in varied pre-class, in-class and on-line activities, such as taking initiatives and challenges in multiple ways for their own assigned tasks and project learning, facilitating discussions among their peer learners and instructors, and stimulating critical thinking in order to achieve higher-level learning.

Figure 1 presents a visualized depiction of the major aspects of FC-TBL activities and the details of the activity flow within a flipped learning environment. While both individual and group activities were introduced, students gained the opportunities to engage in active learning while preparing for their assigned readings, videos, sharing notes and posting responses and feedback for the discussion prompts.

## Research methods

### Participants

Participants were 120 business-majored undergraduate students at two National universities in Taiwan. All of them took the HRM courses based on the flipped-classroom team-based learning models which were designed by our research team in the same semester. A total of 104 surveys were collected and most of them were valid for data analysis. The response rate was 86.67%. On the other hand, qualitative data were collected in order to supplement the quantitative findings by interviewing six volunteered students and two instructors based on the convenience sampling.

### Measures

The previous studies had generated fruitful findings and knowledge about learners' perceptions about computer-supported team-based learning (CS-TBL). Considering the applicable research purpose and scope, the evaluation framework and measures from Gomez, Wu, & Passerini (2010) were adopted and modified in this study to evaluate learners' perceptions, feelings, and learning outcomes in the flipped team-based learning setting. As their research was originally conducted in the CS-TBL environment with computer-mediated learning modules, modifications to the survey items were made to specify the FC-TBL by fine-tuning a few context-specific words. By doing so, the authors attempted to ensure that the content validity are maintained as high as possible grounded in the current research design (Adcock & Collier, 2001). In terms of construct validity, the average variance extracted (AVE) was applied to evaluate the discriminant and convergent validity of the measurement (Hair, Black, Babin, Anderson, & Tatham, 2006). Table 2 presents the factor loadings and the AVE values for each construct.

Table 2. Factor structure matrix of loadings

Constructs		Loadings	AVE
Perceived team member's valuable contributions (PTMV)	PTMV1	0.894	0.719
	PTMV2	0.861	
	PTMV3	0.875	
	PTMV4	0.910	
	PTMV5	0.788	
	PTMV6	0.747	
Perceived motivation from FC-TBL (PM)	PM1	0.952	0.906
	PM2	0.952	
Perceived enjoyment from FC-TBL (PE)	PE1	0.831	0.736
	PE2	0.831	
	PE3	0.871	
	PE4	0.826	
	PE5	0.925	
Perceived learning from FC-TBL	PL1	0.866	0.703
	PL2	0.905	
	PL3	0.735	

In addition, the internal consistency reliability was measured by examining the Cronbach's alpha. The paper-based questionnaire, consequently, consisted of 18 items and four measures, including perceived team member's valuable contributions to FC-TBL (PTMV), perceived motivation from FC-TBL (PM), perceived enjoyment from FC-TBL (PE), and perceived learning from FC-TBL (PL). More specifically, PTMV has three items. The sample question is "Most classrooms' comments are very valuable." PM has two items. The sample question is "FC-TBL motivated me to do my best work." PE has five items, and the sample question is "I enjoy sharing my knowledge of course related materials with my team through FC-TBL." PL has six items. The sample question is "The learning quality of course materials was improved by the team activities." These first three variables were rated by a 5-point Likert scale, and the last variable was rated by a 7-point Likert scale.

Upon close attention to the literature of flipped classrooms and team-based learning, the research hypotheses that guided this study are formulated as follows:

- Hypothesis 1a: Higher perceived team member's valuable contributions will increase motivation from FC-TBL.
- Hypothesis 1b: Higher perceived team member's valuable contributions will increase enjoyment from FC-TBL.
- Hypothesis 1c: Higher perceived team member's valuable contributions will increase perceived learning from FC-TBL.
- Hypothesis 2a: Higher perceived motivation will enhance learning from FC-TBL
- Hypothesis 2b: Higher perceived motivation will enhance perceived enjoyment from FC-TBL
- Hypothesis 3: Higher perceived enjoyment will enhance learning from FC-TBL
- Hypothesis 4a: Perceived motivation mediates the relationship between perceived team member's valuable contributions and perceived learning from FC-TBL.
- Hypothesis 4b: Perceived enjoyment mediates the relationship between perceived team member's valuable contributions and perceived learning from FC-TBL.

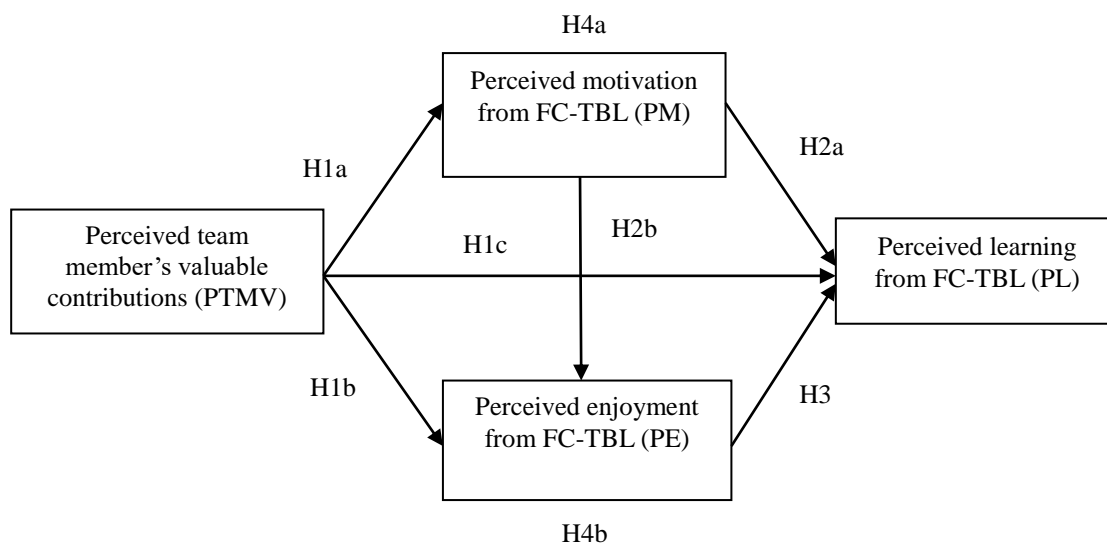


Figure 2. Flipped-classroom team-based learning (FC-TBL) research framework

## Results

### Quantitative findings

Table 3 presents descriptive statistics and inter-correlations of all measured variables. As expected, the associations between all variables are correlated. Perceived team member's valuable contributions is positively related to perceived learning, motivation, and enjoyment ( $r = 0.70, p < .01$ ;  $r = 0.61, p < .01$ ;  $r = 0.67, p < .01$ ). Perceived motivation is positively related to perceived enjoyment and learning ( $r = 0.82, p < .01$ ;  $r = 0.76, p < .01$ ). Perceived enjoyment is also positively related to perceived learning ( $r = 0.77, p < .01$ ).

Table 3. Descriptive statics and inter-construct correlations

	Mean	SD	PTMV	PM	PE	PL
PTMV	3.77	.55	(.79)			
PM	3.57	.65	.61**	(.90)		
PE	3.55	.57	.67**	.82**	(.91)	
PL	5.05	.88	.70**	.76**	.77**	(.92)

Note.  $n = 104$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; reliability coefficients are in parentheses.

Regression analysis has been used to further examine the relationship among variables in this study. The results show that all hypotheses are supported as shown in Table 4, the summary of hypothesis results. Accordingly, hypotheses 1a, 1b, and 1c were all supported. That is, higher perceived team members' valuable contributions will increase perceived motivation, enjoyment, and learning from the FC-TBL learning settings. Hypotheses 2a and 2b are supported, which suggests that higher motivation also enhanced learners' enjoyment and learning in this context. Hypothesis 3 is supported as well, which means that learners' higher perceived enjoyment enhanced their learning.

Table 4. Summary of hypothesis results

Hypotheses	$\beta$ Value	Significant $p$ -value	Supported (yes/no)
H1a	.61	$p < .001$	Yes
H1b	.67	$p < .001$	Yes
H1c	.69	$p < .001$	Yes
H2a	.76	$p < .001$	Yes
H2b	.82	$p < .001$	Yes
H3	.77	$p < .001$	Yes

### Mediating effects

According to Table 5, Model 4 displays the significant mediating effect of perceived motivation from FC-TBL on the relationship between perceived team member's valuable contributions and learning from FC-TBL ( $\beta = .54, p < .001$ ). In Table 6, Model 8 shows the significant mediating effect of perceived enjoyment from FC-TBL on the relationship between perceived team member's valuable contributions and learning from FC-TBL ( $\beta = .55, p < .001$ ). Thus, Hypothesis 4a and 4b are supported as well. Namely, perceived team member's valuable contributions can impact perceived motivation and enjoyment, and then, perceived motivation and enjoyment can impact perceived learning from FC-TBL.

Table 5. Mediating effect of motivation

Variables	PM	PL	PL	PL
	Model 1	Model 2	Model 3	Model 4
	$\beta$	$\beta$	$\beta$	$\beta$
PTMV	.61***	.69***		.37***
PM			.76***	.54***
$R^2$	.37	.48	.58	.67
Adjusted $R^2$	.36	.48	.58	.66
$F$	59.85***	95.02***	142.08***	100.89***

Note.  $n = 104$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 6. Mediating effect of enjoyment

Variables	PE	PL	PL	PL
	Model 5	Model 6	Model 7	Model 8
	$\beta$	$\beta$	$\beta$	$\beta$
PTMV	.67***	.69***		.33***
PE			.77***	.55***
$R^2$	.45	.48	.59	.65
Adjusted $R^2$	.44	.48	.58	.64
$F$	82.29***	95.02***	145.59***	92.93***

Note.  $n = 104$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



## Qualitative findings

In terms of the students' perceived team member's valuable contributions, this perception plays a significant role in influencing their perceived motivation. It is believed that the major benefits of working as a team is that team members can take an active interest in supporting each other according to the targeted mission and assigned tasks. Thus, students who take a positive perception of the value of teamwork are more inclined to possess higher motivation towards their learning. As Instructor A reflected,

Throughout this semester, we [the instructor and the teaching assistants] found that the dynamics of a team are infectious. When a student is aware of his/her team members' expectation of their performance, he/she will adjust his/her own [expectations] according to that of the group's in order to live up to the shared standards. The individual contribution leads to a positive reciprocity dynamic within the team, as members tend to perform better to reciprocate the received input with the favorable output.

This idea resonated with Instructor B's belief in social learning theory.

My original design of flipped learning was based on the idea of encouraging my students to observe and emulate behaviors of others in a team. It's is similar to the Chinese philosophy that students learn most effectively when they are literally involved in the teamwork and are inspired to contribute to the team learning...It's a positive and helping cycle.

Yet, Instructor A indicated the negative effects of initiating this flipped project in the HRM course as well.

The flipped learning mode actually requires a workload which compares to the traditional HRM course. In the past, the instructor may only have needed to prepare the lecture materials and take charge of some homework grading. However, in a flipped classroom, more preparation is needed in sorting out relevant supplementary materials, both for the pre-class preview sessions and after-class online discussions. Additionally, the success of the flipped tasks relies heavily on students' motivation and self-paced learning. It will be difficult if students can't contribute too much time to the team's work or lack incentive to fit into this learning model.

Given the benefits of the three phases of course design of a flipped classroom, Instructor B also mentioned that the effort and time he needed to invest in facilitating the online assignments was its drawback. He said,

The workload had drastically increased and thus the support from the teaching assistant became very critical. Sometimes the students were not motivated, I [as the instructor] had to figure out ways to keep encouraging and engaging them...To respond to the online posts was also time-consuming. It took me half a day by providing feedback to a few students' discussions.

In terms of team-based work, student A expressed the mechanism regarding how his group members cooperated.

In every project, [our team] would distribute the work based on the [team members'] abilities. The leader took the initiatives and the other members assisted each other to solve the problems generated by each of us.

Student A further elaborated on how the valued contribution had an impact on their collective learning motivation. He stated that "...we would ask each other for help, but meanwhile feel embarrassed as well [if the request for help is too much]. Because of our learning characteristics, we're all independent and cooperative."

On analyzing the relationship between the perceived motivation and perceived enjoyment, Instructor B shared his postulation, expected outcomes and classroom experience.

In line with the concept of scaffolding, team learning took place when team members finished watching the course videos, further discussed the topics and exchanged ideas with one another. Actually, some classmates had better understanding, whereas others need others' [students'] help and support. For those who were a bit behind, they could assimilate the main course content through this process...This supporting and participatory curriculum design is good because it not only ramps up the learning motivation and enjoyment but also the enjoyment.

In addition to Instructor B's analysis, Instructor A took a slightly different perspective by mentioning students' learning characteristics.

I personally think the perceived motivation would lead to the perceived enjoyment in group work and learning. This is more observable in groups in which students value the quality and outcome of learning...I read students' online postings on a regular basis and [I] did find students' cheering comments from time to time...Yet, there were times I discovered students' low motivation in fulfilling the required work, regardless how devoted and engaged other team members were. It's disappointing in terms of the class morale and discipline.

Meanwhile, three students indicated their perceived enjoyment through the motivating discussion mechanism out of the FC-TBL. Student A indicated her satisfaction and preference to this type of learning mode. She said, "The [team] production was not limited to scarce output in the textbook. [I] obtained a lot of information." Student B noted the discrepancy in this collaborative process, but she enjoyed the team's attempt to "unify the diversity among members into a final consensus." Adding to the opinions of Students A and B, Student C pointed out the synergy from both individual and TBL. He emphasized that "the support and learning within the group help a lot because of how the consulting partners to brainstorm and discuss together."

Overall, both teachers and students acknowledged that FC-TBL fosters the learning outcomes by bonding the group members' interaction as well as spurring up the motivation and engagement internally and externally. As Student D showed in her conclusive evaluation by providing her feedback with the HRM course design:

The course design is very useful. Regarding the preview work, I don't have any negative feelings, but sometimes I lack the momentum to complete it. The use of [online] platform and assignments improve my learning effectiveness. The adoption of video clips and materials for preview has its advantages. Videos can help me easily capture the chapter's ideas, but not in-depth. For the English-speaking videos, there are some difficulties in digesting the content, though.

Disliking the traditional teacher-fronted setting, Student A also showed his positive perspectives on the three-phase structured flipped approach. According to his reflection, "I am not good at memorizing, nor do I like lecture-based teaching. Compared to an exam-driven textbook approach, [I] am more into being pushed for absorbing the content little by little." Student B especially liked the pre-class module because of the required preview duties. He stated that "After watching the video, each group has to set up deadlines, write the summative note and turn in to the group leader for the final check." He further pointed out that the in-class module was effective because "classmates would proposal questions to each other, seeking the information and finalizing the group consensus via the collaborative discussions." Learning from the varied perspectives, Student E also highlighted the benefits of in-class group discussion. He emphasized that "by reading textbooks only, we think in a similar way, but by understanding each other's opinions, we integrate and grow." As for the post-class module, Student F indicated the capabilities that Facebook provide by saying "...Facebook is useful for information collection and increasing interaction. The group discussion area moderates our work distribution and meetings." To sum up, the results of the qualitative analysis supplemented the quantitative findings, providing additional insights into the perspectives of instructors and students on FC-TBL.

## Discussion

The present study first developed a module of FC-TBL in order to promote active learning and participation of business majors in the courses of HRM at undergraduate level. Subsequently, the well-organized team-based course design, along with pre-class activities, in-class activities, and post-class activities was implemented for two HRM classes for a whole semester. In order to evaluate the learning module, a mixed methods research design was used. We found that learners' perceived team member's valuable contributions generally play a key role when students work and learn with team members. According to our quantitative findings, students' perceived team members' valuable contributions positively relate to their motivation (H1a) and enjoyment (H1b) from FC-TBL, and individual learning outcomes (H1c). Accordingly, the learners cared about their team members' value and contributions to the team. If they perceived higher value and contributions of the team members, they are more willing to be devoted to team work as well. Furthermore, they are much happier to share their knowledge of course related materials with team members through FC-TBL. The best thing is that when their perceptions about team members' valuable contribution are higher, the students eventually learn more effectively.

We also found that perceived motivation (H4a) and enjoyment (H4b) are two mediators when talking about the relationship between perceived team members' valuable contributions and learning. That is, when students worked on teams, although they strongly cared about other team members' contributions and value, their

motivation and enjoyment toward FC-TBL were the determinants about learning outcomes. The findings also show that students' perceived motivation from FC-TBL is positively related to *perceived* learning (H2a) as well as to *perceived* enjoyment (H2b). Namely, when students were highly motivated to learn via FC-TBL, they tended to enjoy this flipped learning context, and also, they could learn better. About learners' motivation, some students praised how the course design is very useful to them, so they had more confidence in their ability to learn in this type of course. They also liked to use the platform and assignments because they felt increasing learning effectiveness. Similarly, we also found that perceived enjoyment from FC-TBL can positively impact learning (H3). That is, when students were more likely to enjoy the team activities in this flipped learning context, they would be able to eventually achieve higher levels of learning.

The aforementioned findings resonated with the theories and empirical studies related to social exchange (Chen, 2013; Emerson, 1976; Jin, Park, & Kim, 2010). FC-TBL was formulated to foster individual student's learning by contributing to task completion and reciprocating with each other via information sharing and collaboration. Students were required to preview videos relevant to course content to gain basic knowledge of the course before class. As some students stated, they indeed benefit from teamwork in that they usually help each other when they have learning problems. The effect of team learning took place when some team members finished the course videos earlier. Afterwards, they discussed the topics and exchanged ideas with one another. They shared and organized opinions, urging the team members to feel the necessity to take responsibility for the assigned teamwork. In addition to the pre-class preparatory work, students needed to help each other during in-class activities and post-class discussion as well. FC-TBL design facilitated students' teamwork, and also leveled their understanding of textbook chapter content before class, work better in class, and have more interactions and discussions after class.

## Conclusions and future research

A flipped classroom shifts the focus of learning from a teacher-centered to a student-centered paradigm (Kim, Kim, Khera, & Getman, 2014; Kuiper, et al., 2015; McLaughlin, et al., 2014). This paradigm is beneficial for active learning, satisfaction, and learning achievement by engaging students (Armbruster, et al., 2009; Michael, 2006; Tune, et al., 2013). In addition, learning in small groups or with team members might be a good approach to promote active and efficient learning (Michaelsen et al., 2002). Grounded in the notion of flipped classrooms and TBL, we developed the FC-TBL learning modules and applied them to HRM courses. Gomez, Wu, and Passerini (2010) found that computer-assisted team-based learning is positively useful to enhance learning experiences. In order to better understand the effects of flipped classrooms on team-based learning, we extended their evaluation framework of CS-TBL to FC-TBL. Our findings indicated that the effectiveness of team-based learning can impact learners' learning motivation, enjoyment and outcomes in flipped classrooms. Students are more likely to learn better once they perceive that their team members are devoted to team projects. Finally, students' motivation and enjoyment about FC-TBL are also two critical factors which enhance their learning experience and quality.

Although we tried to incorporate critical factors to investigate students' team-based learning in this flipped classroom, this study still has a number of limitations. First, the evaluation of the effect of FC-TBL HRM courses on learning outcomes were generally analyzed without eliminating some factors, such as other teachers' teaching styles, learners' characteristics, or types of universities. Thus, generalizability might be limited. Second, we interviewed students only to augment the understanding the quantitative results, so the richness and depth of quality qualitative data are limited. Third, more team-based activities can be modified or added to enrich our FC-TBL learning modules, which can better increase learners' intentions to learn. Future researchers are encouraged to incorporate some individual variables, such as personalities, learning styles, to test whether these characteristics can have impact on learning outcomes. In addition, the present study found that the FC-TBL has positive outcomes in the courses of HRM; future research can conduct it in multiple courses, disciplines or educational levels.

## Acknowledgments

The authors would like to thank our anonymous reviewers for their valuable feedback and the Ministry of Science and Technology of Taiwan for its research grant support (MOST 104-2410-H-141-013-MY2 & MOST 105-2410-H-305-075). All errors are exclusively those of the authors.

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