

The Flipped Learning Approach in Undergraduate Finance Education: A Literature Review*

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Abstract: Flipped classrooms are a teaching method which changes the way students and teachers have traditionally learnt and taught course content, through technology and more innovative use of time. Flipped classes can be a solution to the issues that universities face presently and into the future. In this article, we provide a review of literature on how academics in finance have applied the flipped classroom approach in their classes. We used key words of flipped classroom, finance education and application of flipped classrooms in finance education in the database of ProQuest, JSTOR, ScinceDirect and WEB of SCIENCE via La Trobe University Library, Australia. We found 163 articles related to these criteria. When we evaluated all articles we realized that most of the articles were in the area of several flipped classroom applications such as law, mathematics, and language, but not finance education. The results show that there is much indirect evidence of flipped classroom and finance education. Only 10 articles meet the criteria of the flipped classroom and educational outcomes in finance education. We identify common themes in research purposes and results – student perceptions on learning and how to improve academic outcomes. We also identify some areas which the case studies have not explored. In doing so, we aim to provide a comprehensive basis for future research into flipped classrooms in finance education and its implications for the finance industry.

Keywords: Flipped Learning, Finance Education

Üniversite Düzeyi Finans Eğitiminde Ters Yüz Edilmiş Sınıf Yaklaşımı: Bir Literatür Taraması

Öz: Ters yüz edilmiş sınıflar, teknoloji ve zamanın daha yenilikçi kullanımıyla öğrencilerin ve öğretmenlerin geleneksel olarak ders içeriğini öğrenme ve öğretme şeklini değiştiren bir öğretim yöntemidir. Ters yüz edilmiş sınıflar, eğitimcilerin ve eğitim kurumlarının şimdi ve gelecekte karşılaşılabilecekleri sorunlara bir çözüm olabilir. Bu makalede, finans alanındaki akademisyenlerin kendi sınıflarında ters yüz edilmiş sınıf yaklaşımını nasıl uyguladıklarına ilişkin bir literatür taraması sunmaktayız. Avustralya, La Trobe Üniversitesi Kütüphanesi üzerinden ProQuest, JSTOR, ScinceDirect ve WEB Veri Tabanı veritabanlarında anahtar kelimeler olarak ters yüz edilmiş sınıf, finans eğitimi ve ters yüz edilmiş derslerin uygulamalarını kullandık. Bu kriterler ile ilgili toplamda 163 makale bulduk. Tüm makaleleri değerlendirdiğimizde, makalelerin çoğunun hukuk, matematik ve dil gibi farklı sınıf uygulamaları alanında olduğunu, ancak finans eğitimi alanında çok az uygulamanın olduğunu fark ettik. Sonuçlar, ters yüz edilmiş sınıf ve finans eğitimi ile ilgili çok dolaylı kanıtların olduğunu göstermektedir. Sadece 10 makale ters yüz edilmiş sınıf kriterlerini ve finans eğitimindeki eğitim çiktilarını karşılamaktadır. Yapılan çalışmaların çoğunluğu öğrenci algıları ve akademik

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sonuçların nasıl iyileştirileceği ile ilgilidir. Ayrıca vaka çalışmalarının keşfetmediği bazı alanları da tespit ediyoruz. Bunu yaparken, finans eğitiminde ters yüz edilmiş sınıflar ve bunun finans sektörü üzerindeki etkileri hakkında gelecekteki araştırmalar için kapsamlı bir temel sağlamayı hedefliyoruz.

Anahtar Kelimeler: *Ters yüz edilmiş sınıflar yöntemi, Finans eğitimi*

I. Introduction

Finance education and literacy is gaining greater importance, not only for investment, but also for everyday needs. According to the OECD's (2014) Importance of Financial Education for Youth report, the level of financial literacy among citizens of advanced and emerging economies has become a credible concern. The report cites several factors necessitate greater finance education. First is increased levels of financial inclusion and growing middle class in emerging economies. Second is wide ranging developments in the financial marketplace. Third is decreasing numbers of private and public support systems. Lastly are demographic concerns, notably aging populations. Another concern the report argues is poor finance education led to the poor decision making causing the 2007-8 global financial crisis (OECD, 2014) . The purpose of this study is to explore literature regarding flipped classrooms in tertiary level finance education. Flipped classroom methodology is a pedagogical methodology which combines technology and innovative teaching methodologies. In a flipped class, students learn content in their own time, then come to the lessons. The term comes from two high school science teachers who spent in-class time on activities applying the learned knowledge (Bergmann and Sams (2012). It arose as a response to issues stemming traditional lecture-based teaching methods – unengaging for students, not a good use of both teachers' and students' time. We aimed to find how researchers applied the method and the how they measured results. We then propose some discussion for further research and possible implications for both finance education and the finance industry.

The purpose of this article is to review academic literature on flipped classroom teaching method in tertiary level finance courses shown in detailed in Table A. Our purpose was to identify common themes within the literature: purpose for applying flipped classroom in tertiary level finance courses, results and how the researchers measured the results. Another purpose was to explore flipped classrooms ability to tackle other issues , which we approach in the discussio section. We have identified some issues facing finance students and the finance industry which the literature does not explore, regarding industry relevant skills and attendance rates. It is within educators and business interest to ensure graduates are qualified and engaged (The Conference Board, 2006). Therefore, we explore flipped classroom methods in finance education as a possible solution for the issues such as low grades, low attendance rates and graduate skills.

II. The Flipped Classroom

The term “flipped classroom” comes from two American science teachers who had identified that the traditional method of learning; a teacher standing in front of a classroom to deliver content, was not an effective method of teaching and did not accommodate the diversity of learner types and student needs. Ineffective teaching methods do not produce positive achievements and do not engage students’ full interest or capabilities during class time. Bergmann and Sams’ students were involved in extra-curricular activities requiring them to skip classes, others who had to spend a long time travelling to and from school (Bergmann and Sams (2012). The flipped classroom approach aimed to address these students’ issues and make the best use of teachers and students time.

III. What is the Flipped Classroom?

Bergmann and Sams (2012) explain that in a traditional class, teachers deliver content during class time, then students do homework activities in their own time. A flipped class swaps this arrangement. The method consisted of two steps. First, students would watch a teacher-made video at home. Then, they would come to class, where they would take part in in-class activities based on the content. The teacher’s role effectively goes from content delivery to facilitation and guidance. The teacher uses this time to answer questions and give students more personalised help.

Problem based education is a method which originated at McMaster university to provide medical students with the skills to solve medical issues (Albanese and Mitchell, 1993). Albanese and Mitchell state that various other medical schools such as New Mexico, Harvard, Sherbrooke and Michigan state Medical schools, use variations of problem based learning to move teaching away from teacher-centric content delivery, to the problem based approach. Although these different schools use varying approaches to problem-based education, they aimed to construct curricula which could equip students with the right skills. It has since spread to other disciplines.

Schwartz, Mennin and Webb (2013) describe one form of problem based learning as “a method of learning in which the learners first encounter a problem, followed by a systematic, student-centred enquiry process.” In a class using this method, students work in groups, while the teacher acts as a facilitator. In a successful task, the students will have done the following process. First, they encounter the problem with no prior knowledge of how to solve it. Second, they explore prior knowledge, and form hypotheses based on this knowledge. Next, they identify lacking knowledge and study it. The final part of problem solving involves applying the newly learned knowledge to the problem.

Problem-based education develops student abilities; flexible knowledge, problem solving, self-directed learning and collaborative skills, which can lead to better outcomes (Hmelo-Silver, 2004). Under this method, students develop a knowledge base that they apply to a wide variety of problems. Self-directed

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knowledge allows them to identify lacking knowledge. They can then identify what they need to learn and devise strategies to learn it. The emphasis on group work allows them to develop collaborative skills.

Classes using problem based method or similar methods often follow a set of common principals (Harden, 2002). First, there are clearly defined learning outcomes. These are skills that students should have upon course completion. Second is a curriculum which practices these outcomes. Teachers must create materials and activities applying these skills. Third is assessment. These can take any number of forms, so long as they accurately test students' ability. This may entail a shift away from traditional examination methods.

In addition to problem based learning, we also focus on blended learning which is an approach that combines face to face classroom/theatre time with various technologies outside of class time. Garrison and Kanuka (2004) argue that technology creates new ways of thinking as well as the demands. A blended approach can be a solution to this. Sharma (2010) identifies blended learning as a mix of face to face and online learning, combinations of technology mediums and combination of methodologies. Blended learning definitions are ambiguous as different applications may use different ratios of in class and outside learning. It is up to educators to assess what are the optimal ratios of in class and outside learning.

Blended learning is flexible and can accommodate a wider range of learners than traditional methods (Hew and Cheung, 2014). A key benefit of blended learning is the sense of community among students, via use of online platforms. Garrison and Kanuka (2004) argue that these communities encourage open dialogue between students. These open new opportunities for participation as it is more difficult for a single student to dominate. Further, such mediums are more accessible (Rovai and Jordan, 2004). Students can access it anywhere. These connections can enhance the learning experience.

IV. Why flipped classes?

Bergmann and Sams (2012) criticize traditional teaching for being too restrictive on student's ability to learn, arguing that it does not encourage student connection to the subjects or curiosity. Primarily, traditional teaching methods emphasise students remembering and understanding content. They aimed to turn the classroom from content delivery, to place of thinking and learning. Kidd and Morris (2017) find that flipped classroom is more accommodating to student needs. Bergmann and Sams (2012) add that in this way, faster and slower learners are able to get the attention they deserve. Additionally, they argue that it leads to better interactions between students and teachers. Kidd and Morris (2017) further point out that it encourages student creativity.

Various authors argue a number of reasons why flipped classrooms can be an approach for modern pedagogy and these reasons are might be linked to the way students best learn and the use of technology. Young students are

technologically literate and prefer to use it in learning (Hsieh, 2016). Bergmann and Sams (2012) describe technology, particularly social media as the students' "language." Using the internet opens up limitless opportunities for course materials, as well as more mediums for student interaction and creativity. As Universities are already investing in technology, implementing it into the classroom is a logical step (Reidsema, Hadgraft, Kavanagh, 2017).

Universities face many pressures which may make changing from traditional methods to flipped classroom an attractive option for example more demand for skills, more enrolments. Reidsema (2017) conducted projects at the University of Queensland and found that traditional university methods lead to disengaged students. The UQ Flipped classroom researchers made their study under the following context. First was an increased demand for undergraduate education, resulting in larger class sizes and more courses. Second was the need to maintain high education standards despite continual funding cuts.

V. Methodology

In this study, we used systematic literature review which comprises of compiling scientific publications related to an issue and analysing what can be learned through considering these collectively. We started our study by defining a central research question - how successful flipped classroom in finance education? We determined some key words: flipped classroom, finance education and application of flipped classrooms in finance education. We conducted a keyword search on the ProQuest, JSTOR, ScinceDirect and WEB of SCIENCE databases, via La Trobe University Library, Australia. We found 163 articles. The search results found many articles on flipped classroom application on legal, medical, maths and language education. There were few on finance education. Only 10 articles published between 2014 and 2016 met our criteria. We chose those 10 articles because they explain how they applied flipped classroom and the outcomes of their studies in their research. The rest of the articles provide conceptual framework on flipped classrooms. Lack of results which meet our criteria indicates need for further research. We sorted information according to authors, country/university, purpose, measurement and results of the studies.

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VI. Results and findings

In the literature review shown in Table A, the researchers approach their projects with some common themes. A common thread in the articles is improvement. This refers to all areas which Bergmann and Sams (2012) emphasise – grades, use of time, learning experience and student engagement. The researchers purpose was to improve on all aspects of student learning. Bergfjord and Hegerness (2016) used their research to compare the exam results of flipped courses to (traditional) courses from previous years. Jaludin and Mokhtar (2014) expand on this by assessing student and teacher perceptions of their achievement in flipped class settings.

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Flipped classroom can be a solution to unengaged students during class time. Hallows (2015) found that students were not coming to classes prepared. Mu and Paparas (2016) applied flipped classroom method to teach economics to non-economics students. As flipped classes may be a better use of time, this can be a better method of teaching new or difficult content.

The student experience is an important factor, under the hypothesis that improved student experience corresponds with improved grades. Mu and Paparas measure student's views of flipped classrooms and how they compare to their previous experience in traditional classes. Butt (2014) aimed to measure whether students see any value in flipped classes as an effective teaching method. Lubbe (2016) assesses whether students prefer to attend classes that use a flipped method.

Across the reviewed literature, we find that applying flipped classroom methods had a positive increase in students' marks. Lento (2016) finds general improvement across all the markers of achievement. Lopes and Soares (2016) find that grades improved by 19.8%, compared to traditional lectures from previous years' courses. Improvement is not uniform across the cases, as Bergffjord and Heggernes (2012) only report a slight improvement. Although they found that few students received low marks. Thompson and Mombourquette (2014) find that there were no differences between the flipped classes and traditional lectures. Although Thompson and Mombourquette find no grades improvements, their study finds that students felt they did better. Although grades don't support this, we find that student perception on their own learning is important when considering the method. This is present in Lubbe's study, as student feel that watching the videos made them more positive about their performance. Hallows' study finds that the majority of students feel that the class materials helped them to achieve their grade and understand the course material better. Hallows' results are particularly significant, as the students have less prior knowledge of course content than the other studies.

This general positive perception can come from the flipped classrooms method and use of time. Students from Butt's study find that a variety of learning activities is a positive element. The value that the students place on these activities suggests that the method can give them a better learning experience. Lubbe finds that only 4% of students prefer traditional method classes. Duxbury, Gainor and Trifts' (2016) findings indicate that a majority of finance and managerial accounting would take a flipped-style course in future. Although fewer financial accounting students would do so.

The reviewed literature suggests that flipped classrooms use of time is good for delivering content and preparing students for assessments. The students from Lubbes' study indicate that flipped classroom approach helped with time management. Bergffjord and Heggernes' study shows that students prepare better for classes. Hallows' students in general found that using Myfinancelab outside of class times helped in their understanding of course and exam material. Jaludin

and Mokhtar (2014) and Thompson and Mombourquette (2014)'s findings shows that flipped classrooms' emphasis on students taking charge of their own study in their own time leads to positive outcomes. These studies found that teachers can spend more time with students, answering questions and working on problem solving. The improved time management can be a factor that causes positive outcomes in grades and student perception.

VII. Discussion

From the reviewed literature, we can observe that students see real benefits and there are increases in grades. These results suggest that flipped classroom is a worthy consideration for tertiary level finance courses. We propose further research into some areas which the existing literature does not cover. These include effect on graduate skills, integration with industry and student attendance.

Universities must produce graduates with employable skills, as employers demand job-ready, skilled workers (Skillbeck, Hager and Holland, 2006). They also highlight the greater debate within universities on how to produce graduates capable of contributing to society. Industries are not static, therefore required graduate skills must maintain relevant and adequate for the times. Several American organisations: The Conference Board, Corporate Voices for Working Families, the Partnership for 20th Century Skills and the Society for Human Resources Management (2006) have proposed solutions to graduate skills deficiency. Many solutions are principles applicable to flipped classrooms. Flipping classrooms can provide opportunities for universities and businesses to work closely. Teachers cannot improve graduate skills without first identifying exactly what the industry requires. The report has several suggestions for this sort of integration. First, businesses and educators must have a mutual understanding of the classroom and business. Second, all parties should consider different methods of teaching skills. and appropriate forms of assessment. The solutions should come from the discussions between educators and businesses. Businesses will give a unique insight to industry demands within the national and modern context, therefore business participation in further research can yield valuable insights and give value to flipped classroom research.

The review indicates that students are receptive to the flipped classroom method. However, the authors do not mention if it increases attendance. Higher attendance rates generally indicate high achievement (Devadoss and Foltz, 1996). Caviglia Harris (2006) finds that absenteeism is more prevalent in larger classes. Devadoss and Foltz also find that this affects industry readiness of graduates.

Westrick et al (2009) has identified two categories explaining student absences. The first is lifestyle factors. These include illness, busy class schedules and other obligations, such as work. The second is motivation. Massingham and Herrington (2006) find that lifestyle factors affect attendance in lectures, where attendance does not count toward the mark. They find that students are choosing

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not to attend these types of classes, as attendance is not required to pass. Another important element is that if they can find content online, they do not see any value in attendance. Modern e-assessment styles, combined with modern lifestyles mean that these types of learners are increasing in number.

Students may choose to miss classes due to the content, teacher or teaching methods. Westrick finds that students will attend classes if they see value in them. Much of this is dependent on both student motivation, as well as teachers and methods. Students see value in attending classes, as there may be content there that is not available online. Most importantly, students attend if they receive marks for it (Gbadamosi, 2013).

There some methods to improve attendance levels. Devadoss and Foltz (1996) offer compulsory attendance as a remedy. Gbadamosi's (2013) study shows that policies to boost attendance can work. This solves the attendance issue, but it does not solve student motivation. Massingham and Herrington (2006) suggest a shift from teacher-centred, to student-centred approaches as well as embracing technology. This will encourage student engagement, which leads to better employability outcomes.

VIII. Conclusion

Educators originally conceived the flipped classroom idea as a solution to improve achievement outcomes and to improve students' learning experiences in high schools. Tertiary level educators have applied this method to some varying degrees of success. However, there are avenues for further research to fully realise flipped classrooms' potential. As universities continue to accept, teach and graduate students in their finance courses, it is essential that they provide an acceptable standard of education. Courses should not only be interesting to students but should also engage the full capacity of their learning abilities. The literature suggests that shifting away from traditional lecture-based classes can fulfil this need. Researchers undertook these case studies with a clear purpose, recognising that there was room for improvement under the then current curricula. The case studies demonstrate that applying the flipped classroom can have many benefits. These include improved academic outcomes, student and teacher satisfaction and more engaged learning. These results we obtained from this review indicate that there is some value in more research on a wider scale for Finance education. As university Finance schools aim to provide the best possible outcome, this research, as well as further research can act as a framework for new curricula. Likewise, related industries have an interest in ensuring that these courses are up to date with skill demands and can provide capable graduates. Any future projects regarding flipped classrooms in tertiary finance education should aim to build upon existing literature and provide more comprehensive study into the needs of the discipline.

Table 1. Literature Review of the Flipped Classroom Approach in Finance Education

Author(s) /Year	Purpose	Country / Period	Sample /Course Name	Measurement	Results
(Butt, 2014)	Firstly to find out whether traditional lecture format compared to other learning activities. Secondly, to assess how students perceive use of class time after experiencing learning in a flipped class.	July – November, 2012	Approximately 100 enrolments / Actuarial course	Researcher informed the students of the new class structure and purpose behind it. Students completed two email surveys; one during the first week and one during the final week of classes. The first asked for their views on the importance of traditional lectures on their learning, and their expectations of the new course structure. The second asked for their views on the new class structure and how well it assisted their learning.	Survey results show that students place value on having a variety of learning activities and flipped classes. Therefore, a flipped-style class with many different activities can potentially provide students with a more positive perception of their learning experience.
(Lubbe, 2016)	To determine if a flipped classroom approach can improve students' learning experiences in a tertiary level accounting course.	From 2012 to 2015, at the North West University, Vaal Triangle Campus situated in Vanderbijlpark.	Over a four year period, an average of eighty exit-level accounting students participated in the study each year./ Accounting course	Researcher used the University's standard evaluation survey; survey A for the course teacher and B for the course. On survey B, students answered questions about the change in teaching methods and the course videos.	Students felt more positive about their performance in accounting and time management from watching videos before classes. They reported more comfort in answering in-class questions and for assessment preparation. 75% of students indicated that they were able to manage time better under a flipped class. Only 4% of students preferred the traditional teaching method

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(Lopes & Soares, 2016)	To present flipped classroom as a teaching method in a financial mathematics course.	Polytechnic of Porto (P. Porto)	72 students enrolled during the Winter 2015 and 58 students during the Winter 2014 semester / Financial Mathematics	Researchers made a short survey. Students answered questions about how the course structure affected their understanding of and performance in the course.	The success rate increased 19.8% from the starting point set in 2014/15. The success rate in the flipped version of financial mathematics is also much higher than traditional format equivalent.
(Bergfjord & Heggernes , 2016)	To make statistical comparison of a course using data from the past three years. Researchers compared results from a flipped course in 2013/14 to traditionally taught courses from previous years.	Norway, 2013 and 2014	Approximately 100 students. The entry requirements for the program are fairly strict, so the students were generally well qualified and highly motivated.	Researchers used regular course evaluations from previous years. For the flipped course, students completed an electronic anonymous survey after the course and exam.	Survey responses suggest that flipped classroom approach was successful. Students reported that they prepared better for classes and more course satisfaction. Grade averages increased and few students received lower grades. However, online material did not increase motivation to attend lectures.
(Karen Hallows, 2015)	to explore digital course component that could assist in student preparedness and motivation.	2013 - 2018	University of Maryland, College Park—approximately 1,000 students per semester	Researcher made a survey which students completed voluntarily at the beginning and end of the course. Students answered questions about the use of Myfinancelab software in the course and its effect on their learning.	70% of students state that using Myfinancelab had a positive effect on their assessment scores. The same percentage also agree that the resources on Myfinancelab are more beneficial to their learning than traditional homework activities.

(Lento, 2016)	To describe a new classroom approach in a financial accounting course. Researcher measures student performance by comparing a flipped course to a lecture based one	2010-2014	Honors Bachelor of Commerce program at ABC University, Canada.	Researcher uses a quasi-experimental approach; combining student surveys with Wilcoxon rank-sum test of student performance. Final exam and overall course grades were the basis of student performance. Two groups participated in the study – the lecture based group for control and the flipped class group as the experimental.	The results show improvement in the following markers of student performance – grade point averages, final exam grades and pass rates. The flipped classroom approach is beneficial to both weaker and stronger students.
(Mu & Paparas, 2016)	Firstly, to engage student learning outside of class times. Secondly to explore a better method to teach economics to non-economic major students. Researchers flipped the first four weeks of the course.	Unspecified	170 students from three economics modules. Harper Adams University, Newport, UK	After the fourth week, researchers conducted a student survey exploring adopting the flipped approach on a wider scale.	Only 47% of students indicated that they would prefer to take a course using the flipped approach. Researchers found that technologies such as EDpuzzle can be effective aids in delivering content and class monitoring. However, there needs to be further effort to improve students' motivation and class readiness.

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(Osman, Jamaludin, & Mokhtar, 2014)	To determine lecturer and student perception of achievement and learning cultures in bot a flipped and traditional classroom.	2014	Malaysian Polytechnic, study has been conducted between two classes; 31 students in a flipped classroom and 30 students in a traditional classroom	Researchers made a questionnaire and interviewed the students. They then analyzed the findings using a sample t test.	A higher percentage of students in the flipped class pass their assessments was higher than for the traditional class. Researchers also find that a flipped class allows the teacher more time to spend on problem solving. The method is applicable despite a lack of facilities.
(Duxbury, Gainor, & Trifts, 2016)	To provide a roadmap and identify challenges for finance and accounting academics may seek to apply flipped classrooms to their own courses in future.	2013 A total of 231 students completed the surveys, 61 in finance, 76 in managerial accounting, and 94 in financial accounting	Eastern Mennonite University and Bryant University,	Researchers used an indirect student survey method. Researchers asked students about effect of course structure on learning of material.	Results vary across the different courses, but students generally agree that material is easier to learn in a flipped classroom. Finance and managerial accounting students have a stronger preference for flipped classes and are more likely to choose a flipped course in future compared to students from financial accounting.
(Thompson & Mombourquette, 2014)	Firstly, to compare academic outcomes between a flipped and traditional course, secondly, to analyze student opinions of the flipped classroom environment.	2012	Mount Saint Vincent University	Researchers conducted interviews, using open-ended questions with students at the end of the term. Aim of the interviews was to obtain information on the students' views on the flipped classroom. They also compared grades between the three sections to compare the results between flipped and traditional classes.	Researchers found no differences in grades between the two methods. Students felt that they performed better, even though grade results do not reflect this. This perception may stem from their positive views of the interactions and help they receive in a flipped class.

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