

## Flipped classroom in accounting courses: A systematic review

**Benedecta Indah Nugraheni\***, Yogyakarta State University, Graduate School, Yogyakarta, 55281, Indonesia/  
Sanata Dharma University, Faculty of Teacher Training and Education, Yogyakarta, 55281, Indonesia  
<https://orcid.org/0000-0003-1777-5868>

**Sukirno Sukirno**, Yogyakarta State University, Faculty of Economics, Yogyakarta, 55281, Indonesia  
<https://orcid.org/0000-0002-1914-937X>

**Lorensius Hendrowibowo**, Yogyakarta State University, Faculty of Education, Yogyakarta, 55281, Indonesia  
<https://orcid.org/0000-0001-9478-929X>

**Gregorius Punto Aji**, Sanata Dharma University, Faculty of Teacher Training and Education, Yogyakarta, 55281,  
Indonesia <https://orcid.org/0000-0002-7166-132X>

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### Abstract

Flipped classroom (FC) is one of the learning approaches that are currently being implemented in various fields of study in higher education because it has several advantages over traditional methods. However, the implementation of FC in accounting courses is still limited. This review aimed to investigate the FC implementation in accounting courses in higher education, particularly the reasons for implementing FC, the strategy and its impacts. The 15 articles reviewed were selected using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram. The results indicated that the application of FC is motivated by problems that occur in accounting courses, the weaknesses of the method used, the desire to increase student learning experiences, and the potential offered by FC to improve accounting learning. The strategies used in implementing FC varied. FC had a positive impact on accounting learning and most students prefer this approach. FC is a recommended approach for accounting as an application-oriented course.

Keywords: Accounting courses, flipped classroom, flipped learning, higher education, systematic review;

\* ADDRESS OF CORRESPONDENCE: Benedecta Indah Nugraheni, Yogyakarta State University, Graduate School, Yogyakarta, 55281, Indonesia/ Sanata Dharma University, Faculty of Teacher Training and Education, Yogyakarta, 55281, Indonesia  
Email address: [benedectaindah.2020@student.uny.ac.id](mailto:benedectaindah.2020@student.uny.ac.id)

## 1. Introduction

Creating an active learning environment is an important task for higher education institutions to facilitate the students to develop higher-order thinking skills that are needed in the rapidly changing digital world (Neto et al., 2017). However, many higher education institutions still implement traditional lectures as an integral part of the learning activities, although this method has numerous shortcomings (Lubbe, 2016). It also happens in the accounting classroom (Duxbury et al., 2016). The traditional lectures tend to be teacher-centred so that students become passive and less involved in the learning process. Recently, however, pressure has been placed on universities to ensure that students are involved more in classroom learning to enhance their learning experience (Williams et al., 2019).

One of the characteristics of students in this digital era (millennial) is that they do not want to be lectured. Nowadays students need ways of learning that are different from the past that is meaningful to them, and alternatives that make good use of the technology (Prensky, 2005). Therefore, integrating an active learning strategy is a must if teachers expect student engagement in learning (Roehl et al., 2013). Flipped classroom (FC) is one of the various techniques used by teachers who apply active learning (Nishigawa et al., 2017). FC is well suited to millennial preferences since it can be used to promote active learning, teacher-to-student mentoring and collaboration among peers (Roehl et al., 2013).

FC is classified as one type of blended learning that combines face-to-face and online learning (Nishigawa et al., 2017). Rapid technological developments make FC grow rapidly (Bhagat et al., 2016). FC has become popular recently (Akparibo et al., 2021; Williams et al., 2019). It is shown from the wide implementation in K-12 schools and also in higher education institutions around the world (Al-Samarraie et al., 2020; Karabulut-Ilgu et al., 2017). FC is increasingly being used by many universities and colleges as it provides many benefits (Huong et al., 2018; Karabulut-Ilgu et al., 2017). It provides an active student learning experience, resulting in deeper learning (Limaymanta et al., 2021; Williams et al., 2019), promoting peer interaction and deeper engagement with the material (Karabulut-Ilgu et al., 2017) and encouraging students' self-regulation abilities (Zarouk et al., 2020).

Many experimental studies have shown that the implementation of FC has positive impacts and was more effective than traditional methods to improve the learning process in many disciplines (Bhagat et al., 2016; Lento, 2016; Lubbe, 2016; Prada et al., 2019) and in increasing many kinds of variables. Students in English classes with the FC have better writing performance than those learning with the conventional approach (Lin et al., 2018). FC positively affects students' academic achievements and attitudes toward mathematics (Karadag & Keskin, 2017). Students' performance and satisfaction improve significantly with the FC (Nielsen et al., 2018). Students' critical thinking in FC class is found better than in the traditional lecture for nursing students (Dehghanzadeh & Jafaraghaee, 2018) and students of introductory educational psychology (Lee, 2018). FC implementation has improved communication and critical thinking skills in problem-solving for students in accounting (Ibrahim et al., 2018).

Conventional teaching methods and a lack of adequate concern about technological change are the factors that result in students' poor performance in accounting (Ugwoke et al., 2018). Therefore, the implementation of an active learning strategy and the utilisation of technology are important aspects of accounting learning. FC is a suitable approach that can be applied to support active learning in teaching accounting (Neto et al., 2017). Active learning is very required in teaching accounting because it is a practical subject, which needs understanding and application of a large number of complicated accounting standards (Romburgh, 2014).

### *1.1. Related reviews and meta-analysis*

Many topics on the application of the FC approach in higher education have been summarised in some previous reviews and meta-analyses. Scoping review of the use of FC in higher education has been conducted by O'Flaherty and Phillips (2015) by analysing 28 articles. The results indicate that the FC approach can increase academic performance and student satisfaction. The results of content analysis by Zainuddin and Halili (2016) of 20 articles from various fields of study on FC research trends and content show that FC has a positive impact on student achievement, engagement, motivation and interaction. Li et al. (2021) analysed 155 articles to enquire about the link between flipped learning and active learning, particularly in which theoretical frameworks are explained. The theoretical and conceptual foundations are generally only vaguely explained and the results showed an eclecticism and an aversion to linking FC to a particular conceptual framework.

Låg and Sæle (2019) conducted a systematic review and meta-analysis on the impacts of FC on student learning and satisfaction by comparing FC teaching and traditional. The results indicated that there was a small effect supporting FC on learning, pass rates and student satisfaction. Nevertheless, there is some support for the idea that if examining student preparation becomes part of the implementation, the positive impact on learning perhaps increases slightly. Zheng et al. (2020) conducted a meta-analysis by synthesising 95 studies on the effectiveness of FC on students' learning achievement and motivation compared to traditional lecture-based instruction. This meta-analysis included research conducted in elementary schools (3.16%), secondary schools (14.74%) and colleges (82.1%). The findings showed the positive effects of applying the FC and insight into the adoption of this approach in the future.

The previous review and meta-analysis covered a wide range of disciplines, but the others specifically reviewed the application of FC in certain subjects. Seery (2015) reviewed 12 reports about FC in chemistry at colleges whose results indicated that FC was very popular with students, with teachers using FC as a means of developing an active learning environment, promoting engagement and having enough time to develop a deeper understanding of the subject. Njie-Carr et al. (2017) conducted an integrative review of 13 relevant research concerning the FC model in nursing education. The result of this study provided the design and process information on FC models in nursing education, the evidence of the FCs implementation, and the foundation for building future research in nursing education. A systematic review by Karabulut-Ilgü et al. (2017) analysed the current condition of knowledge and practice in the FC approach in engineering education and provide guidance for practitioners. Hendrik and Hamzah (2020) reviewed 32 articles about the FC implementation strategy in the programming course, and found four types of FC implementation strategy, namely pilot, solitary, mixed and fused implementation.

### *1.2. Purpose of the study*

Although FC has been widely applied in various disciplines and has brought a positive impact in actively involving students in learning, the evidence of its effects on accounting students in the higher education is still very little (Ling et al., 2019; Lubbe, 2016). The literature review on the FC implementation in higher education in various themes and disciplines has been conducted, but the one that particularly provides a review in accounting has not been published yet. Hence, this study aimed to fill that research need and to provide insights into conducting future research related to the implementation of FC in accounting courses in higher education. To achieve these goals, this study is intended to seek answers to three research questions which are formulated as follows:

RQ1: What are the reasons for implementing FC?

RQ2: How is the strategy of FC implementation?

RQ3: How are the impacts of FC implementation in accounting courses in higher education?

## 2. Method

### 2.1. Literature search strategy

Publish or Perish software was used to search databases in order to have the literature for review. Scopus and Google Scholar databases are chosen to find relevant and eligible articles. The searching terms used were "flip\*" OR "inverted" OR "inverse" AND "accounting", to find title words or keywords of the articles using those terms. The term flip with an asterisk ("flip\*") was intended to search for all words containing "flip", it can be "flip" or "flipped" or "flipping" which could be followed by other words such as "classroom" or "learning" or "teaching". The article search was also carried out in the Journal Storage (JSTOR) database that used the terms (((((ab:("flipped") OR ab:("flip")) OR ab:("flipping")) OR ab:("inverted")) OR ab:("inverse")) AND ab:("accounting")) AND la:(eng OR en). In addition, article searches were also carried out manually using search engines such as Google and Mendeley Reference Manager.

### 2.2 Selection criteria

Some criteria were put on the results acquired from database searches in order to obtain a number of worthy articles for this study. The time period is limited from 2016 to earlier. However, the search results showed that there were no articles published from 2021 to October 2022 that met the specified criteria. Table 1 shows the inclusion and exclusion requirements in detail.

**Table 1**  
*Inclusion and Exclusion Criteria*

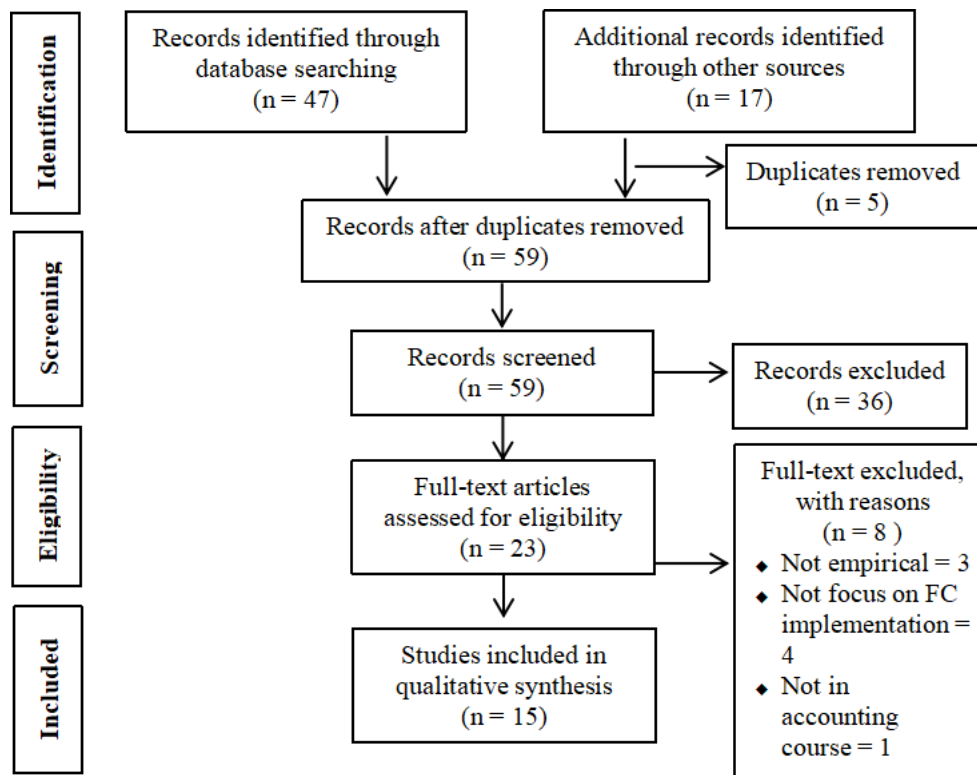
Criterion	Inclusion	Exclusion
Time period	2016 and after	Before 2016
Language publication	English	Non-English
	Articles that were published in a journal that engaged peer-review	Articles that were not published in a journal that engaged peer-review, conference papers, book reviews, dissertations and thesis
Educational level content	Higher education Original research on the FC implementation in accounting courses that discuss the reason, how to implement FC and its impacts on learning performance.	Other educational levels Other researches

### 2.3. Selection process and results

By using Publish or Perish and the search terms above, 16 articles were obtained from the Scopus database and 13 articles from the Google Scholar database. Around 18 articles were found from JSTOR and 17 articles were found from other sources. The article selection process was carried out using the

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram which consisted of four stages, namely: identification, screening, eligibility and included (Moher et al., 2009). The titles and abstracts of 59 articles were screened for relevance, types of publications and language. The next process was a full-text review of 23 articles in order to know whether they were empirical studies and focused on implementing FC. Further in in-depth analysis, full-text review was conducted on the final 15 studies that were included in the analysis, as shown in Table 2.

The overall process of selecting articles can be seen in the PRISMA flow chart shown in Figure 1.



**Figure 1**  
*PRISMA Flow Chart for Selecting Articles*

**Table 2**  
*Reviewed Articles*

Authors	Year	Location	Courses	Study design
Lento	2016	Canada	Introductory Financial Accounting	A quasi-experimental design and surveys
Jamaludin et al.	2016	Malaysia	Fundamental of Accounting	Mixed method design
Brown et al.	2016	USA	Intermediate Accounting	Survey
Downen and Hyde	2016	USA	Managerial Accounting Principles	A crossed within participants research design

Lubbe	2016	South Africa	Accounting	A mixed method research
Duxbury et al.	2016	USA	Managerial Accounting and Financial Accounting	Experiment
Khairudin et al.	2017	Malaysia	Business Accounting	Action research
Ibrahim and Haruna	2017	Nigeria	Advance Financial Accounting	Quasi experimental
Ugwoke et al.	2018	Nigeria	Elements of Accounting	Quasi-experimental
Serçemeli et al.	2018	Turkey	Computerised Accounting	Simple descriptive research design
Williams et al.	2019	Tasmania	Introductory Accounting	Action research
Chiou et al.	2020	Taiwan	Hospitality Accounting	A quasi-experimental
O'Haver	2020	USA	Management Accounting	A quasi-experimental
Zhang	2020	China	Accounting Information System	Experiment
Centeno et al.	2020	Madrid	Accounting	Survey

The selected articles were reviewed using content analysis, based on the purposes of this study. The analysis results were interpreted using descriptive analysis and reported systematically. Finally, the conclusion and recommendations were made for further research.

### 3. Findings

#### 3.1. Reasons for implementing FC

The survey on the selected articles found that there were several reasons for using the FC that can be classified into four reasons. *First*, there were various learning problems that were often found in accounting courses, so the lecturers had the desire to use new approaches to overcome these problems. The problems found, for example, in introductory financial accounting (Lento, 2016; Ugwoke et al., 2018) and advanced financial accounting (Ibrahim & Haruna, 2017) courses, were that they often experienced a high failure rate caused, among other things, by the teaching methods and techniques used by the accounting lecturers. On the other side, there was a tendency that most accounting students had a negative attitude towards accounting, so they did not prepare for class and did not do their homework as well (Brown et al., 2016; Lubbe, 2016). They considered that accounting courses were very difficult and complex, incomprehensible, boring and abstract, had too much content, were too fast for class progress, and required a lot of calculations. Therefore, they had to struggle in understanding the core concepts of accounting standards (Chiou et al., 2020; Lubbe, 2016; Ugwoke et al., 2018).

*Second*, other reasons for switching to FC were related to the weakness of the learning methods. Most colleges still used traditional methods that tended to be teacher-centred and knowledge-based (Zhang, 2020). Although traditional lectures were often accompanied by cases, problems and discussions, most of the class time was allocated to the lecturer teaching while students passively took notes (Duxbury et al., 2016). Traditional lectures basically only conveyed information so they were not suitable for accounting courses that emphasised the application of concepts so that students would really learn (Downen & Hyde, 2016). In traditional classrooms, the time for students to discuss and explore was clearly insufficient, so students' critical thinking skills and initiative could not be developed, resulting in their decreased interest in learning (Zhang, 2020). In other cases, accounting student

attendance for traditional university courses varied widely from 75% to only 25% depending on the subject matter for a particular course (Lubbe, 2016).

*Third*, the desire of accounting teachers to create effective accounting learning by applying different methods that were meaningful, interesting and could motivate students to learn had also become the reason that encouraged teachers to apply FC (Ugwoke et al., 2018). In addition, there was a need to direct accounting students to a deeper learning approach and understanding, because the results of the study showed that accounting students tend to prefer rote learning strategies rather than strategies that created deeper learning and understanding. In this regard, FC had been recommended as a learning method that could improve students' learning experiences (Chiou et al., 2020; Williams et al., 2019).

*Fourth*, it was found that the accounting lecturer's idea to use FC was inseparable from the advantages offered by FC compared with the traditional method. FC was believed to be able to ensure that students came to class in a prepared state (Serçemeli et al., 2018) because of learning activities before class. The use of technology in learning, such as the Learning Management System (LMS) and other online tools, made FC the potential to increase students' interest and achievement in learning and meet their learning needs as well. The FC technique in LMS was also very suitable for teaching procedural knowledge such as solving accounting problems (Ugwoke et al., 2018). The results of previous research showed that integrating technology in learning with FC could create an active learning environment, improve learning, and encourage teachers to change learning that still used traditional approaches (Jamaludin et al., 2016).

### 3.2. Strategy of FC implementation

Implementation of FC in the learning process was done with various strategies although basically the designed learning activities included three phases, namely pre-class, in-class and after-class activities. This review is intended to explore the learning activities and resources utilised in accounting courses in higher education by applying FC. From the reviewed articles, not all articles reported in detail about the strategies used, but some only explained globally.

#### 3.2.1. Pre-class activities

Activities that were often carried out by students before class can be categorised into two types of activities, namely material preparation and taking quizzes. The reviewed articles showed that most lecturers generally only give assignments to students to learn the material that had been prepared by the lecturer in a variety of formats. Only two articles stated that besides being assigned to learn the material through watching videos, students were also asked to take quizzes (O'Haver, 2020; Ugwoke et al., 2018). Besides watching videos, other learning activities that were also carried out as preparation before class were responding to discussion forums (Jamaludin et al., 2016; Ugwoke et al., 2018), e-mailing and messages (Ugwoke et al., 2018), finishing pre-course exercises provided on the Massive Open Online Courses (MOOC) platform and communicate with friends and lecturer when facing problems (Zhang, 2020), and drawing a concept map (Chiou et al., 2020). With this variety of activities, there was an interaction between student and material, student and student, as well as student and lecturer outside the classroom that would provide guidance for students to explore and use the knowledge to involve in-class activities (Jamaludin et al., 2016). Students could carry out learning activities outside the classroom flexibly in terms of time and place.

In FC, the lecturer could provide the material in a variety of formats (Seery, 2015). Nevertheless, most of the literature that discussed the application of FC in various disciplines used video as the main media to convey material that students had to learn before class. This review found that the resources

used in pre-class preparation included video lectures (Centeno et al., 2020; Chiou et al., 2020; Duxbury et al., 2016; Jamaludin et al., 2016; Khairudin et al., 2017; Lubbe, 2016; O'Haver, 2020; Serçemeli et al., 2018; Ugwoke et al., 2018; Williams et al., 2019; Zhang, 2020), white-board voice-over videos, Publisher Tutorials, YouTube Videos, and Textbook Readings (Centeno et al., 2020; Lento, 2016). Three reviewed articles explained that the materials were given to students before class not in video format or online resources. Brown et al. (2016) gave assignments to students to read textbooks using guided reading questions to motivate students to prepare for class, and as a result increase participation in class. Other formats are lecture slides (Downen & Hyde, 2016) and pre-class reading materials and assignments (Ibrahim & Haruna, 2017).

Students could carry out learning activities outside the classroom flexibly in terms of time and place. They could access the material through various platforms. In this case, the learning platform used by the lecturers to share materials are YouTube and Blendspace (Jamaludin et al., 2016), Blackboard collaborate (Duxbury et al., 2016), LMS, like Moodle and Edmodo (Lento, 2016; Lubbe, 2016; Serçemeli et al., 2018; Ugwoke et al., 2018), MOOC platform (Zhang, 2020) and course website (Downen & Hyde, 2016).

### 3.2.2. *In-class activities*

The consequence as well as the advantage of implementing FC was that the time available during face-to-face classes could be fully utilised to engage students actively. Lento (2016) used class time to discuss comprehensive problems and cases, concept mapping, mini-lectures with Bookends and small group discussions. Brown et al. (2016) facilitated discussions and problems solving activities based on textbook reading assignments and the answers to reading guide questions that students had completed before class. In class, individual students were randomly chosen to give their answers. The lecturer used student responses as a class participation grade for them in order to motivate students to read and answer the questions given. Khairudin et al. (2017) used an active learning approach by asking students to respond to the given question based on the chapter, and work on problems that fit together in small groups.

Slightly different from previous research, Downen and Hyde (2016) did not provide any direct grade incentives for advance preparation. However, compared to traditional class methods, students in FC tend to be better able to contribute to small group discussions on comprehensive problems and when randomly called on to help with problem assignments on the whiteboard. It happened because they had reviewed the lecture content before class.

Other articles generally applied the same strategies included in collaborative learning, such as through group project/discussion (Ugwoke et al., 2018), working in group to discuss certain topics followed by interactive style questions, case study analysis and then present the findings to the class (Williams et al., 2019), group discussion and inter-group Q&A activities to develop student ability in exploring and solving problems (Zhang, 2020). Centeno et al. (2020) reported that student groups were given an assignment in the form of a consulting project in which they were asked to make a proposal for advice to make an investment decision for a company. In the course, students presented their different proposals in groups, discussed the different positions and draw conclusions. In another case, Chiou et al. (2020) applied structured computer-assisted collaborative concept mapping to help students learn accounting knowledge and to clarify misconceptions and difficult concepts.

Flipping the classroom had an impact that students had to make a preparation by learning the material before class, therefore they were considered to be given incentives. It could be realised by having a quiz after learning the material before class or during class, or giving in-class participation



points (Seery, 2015). As aforementioned, from the articles reviewed there were two studies that conducted pre-class quizzes. There were three studies that administered quizzes during class, as one of the evaluation items (Downen & Hyde, 2016; Zhang, 2020), at the end of each week (Lento, 2016), and at the end of the semester as the incentive of attendance on the last day of classes (Brown et al., 2016).

### *3.2.3. After-class activities*

Most of the reviewed articles did not explicitly indicate after-class activities in the applied FC design. A few articles only showed activities before (outside) and during (inside) class. Only two articles clearly designed student activities after class (Lento, 2016; Zhang, 2020). Lento (2016) defined post-class activities as a reinforcement stage, which included completing homework accessed from the Online Homework Manager, watching a video of problem work-through and finishing additional practice problems. Meanwhile, Zhang (2020) mentioned after-class activities as a stage of consolidation and improvement consisting of consolidated knowledge, evaluation and reflection, as well as knowledge expansion and improvement. Several articles reported student activities after class such as watching pre-recorded videos (Serçemeli et al., 2018; Williams et al., 2019), and finishing assigned homework (Chiou et al., 2020).

### *3.3. The impacts of FC implementation*

The application of FC in accounting courses in higher education was carried out for various purposes, which were generally based on problems that arose in accounting classes and the weaknesses of the methods used. Seven studies used experimental and quasi-experimental methods to examine the impact of applying FC, and showed that students in the FC perform significantly better on the students' academic achievement, final exam and the course as a whole, retention and learning motivation compared to students in the traditional method (Chiou et al., 2020; Ibrahim & Haruna, 2017; Lento, 2016; O'Haver, 2020; Ugwoke et al., 2018). More students felt the FC made it easier for them to learn the material, and they showed a strong preference for the FC (Duxbury et al., 2016). The FC had a positive effect in improving students' interest in learning, cooperative consciousness, autonomous learning ability, as well as practical and operational skills (Zhang, 2020).

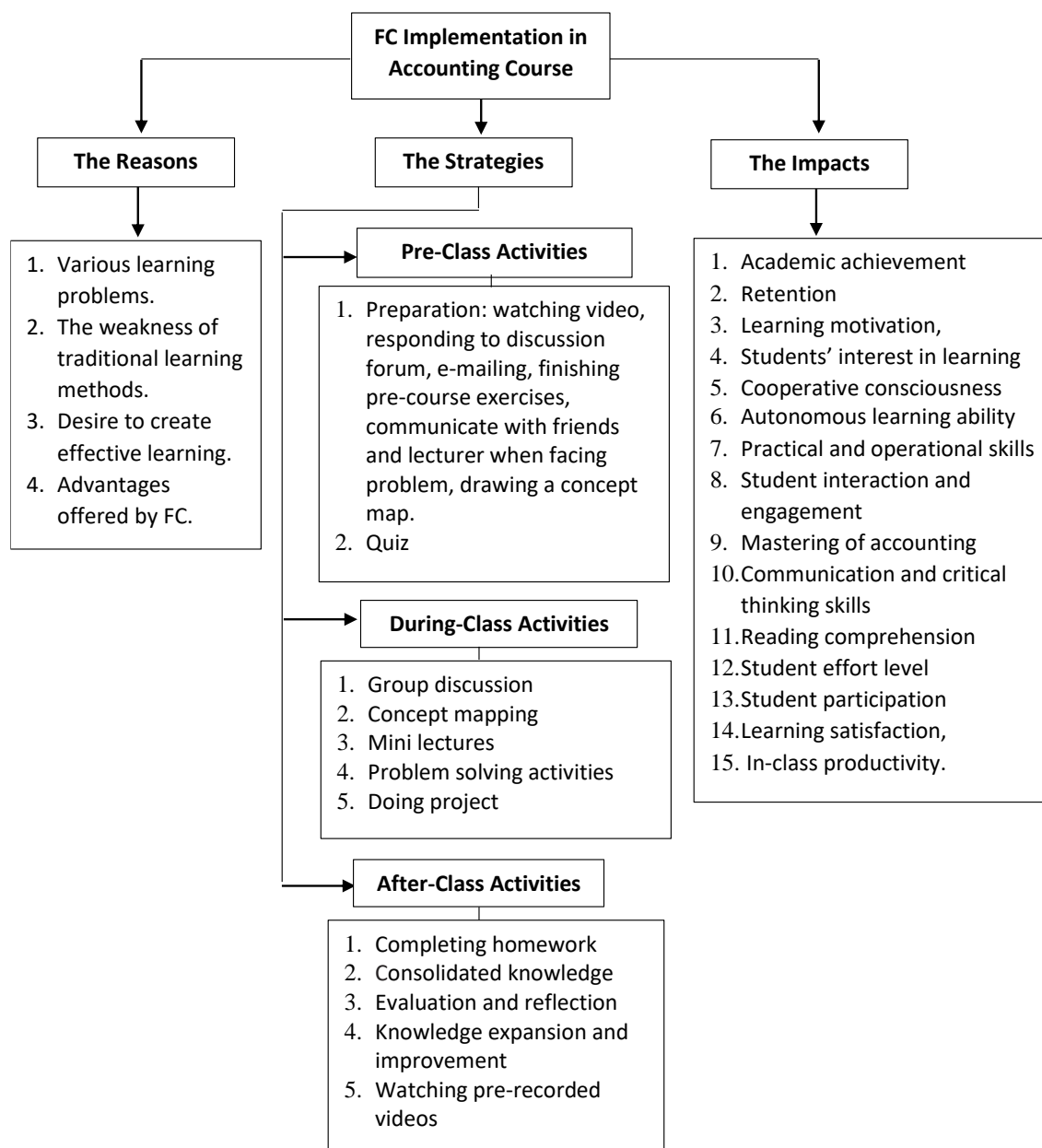
A mixed-method study reported that there was a significant difference between the effect of student interaction and engagement on student achievement. Students had positive comments on the implementation, instruction and interaction outside the classroom (Jamaludin et al., 2016). The other mixed method research indicated that the change in the teaching approach, from a traditional to an FC method, motivated students to feel more positive about their performance in accounting and had a positive impact on the mastering of accounting. In addition, the majority of students preferred the FC method (Lubbe, 2016).

The result of action research showed that the use of FC could help students to improve communication and critical thinking skills in problem-solving (Khairudin et al., 2017). Other action research indicated that the students who used a partially flipped approach generally differed significantly in engagement with the FC learning process and were more comfortable in contributing to discussion compared with students who used the traditional approach (face-to-face). Students found the FC useful as it required them to do the required reading before attending class (Williams et al., 2019).

A survey conducted by Brown et al. (2016) showed that FC had a positive impact on reading comprehension, student motivation, effort level and understanding of the material before going to class and enhanced student participation. Another survey revealed that there was significant satisfaction in

the acquisition of competencies, considering that 60% think that the learning activity implementing FC had been highly beneficial in their learning (Centeno et al., 2020). Downen and Hyde (2016) found that FC had a significant positive effect on grade performance, particularly for lower-performing students. The use of FC would increase in-class productivity, help save time and allow students to revise course content according to their pace (Serçemeli et al., 2018).

All of the findings can be summarised and presented in Figure 2.



**Figure 2**  
Reasons, Strategies and Impacts of FC Implementation in Accounting Courses

## 4. Discussion

### 4.1. Reasons for implementing FC

The reasons underlying the application of FC in accounting learning in higher education were classified into four reasons. First, various learning problems arose in accounting courses; second, the weakness of the used method which tended to be teacher-centred and did not involve students actively in learning; third, the desire to improve student learning experiences; and fourth, the various advantages of FC over conventional methods. These reasons were interrelated with each other, especially the first to third reasons, which revealed the need to change the learning strategies used, and on the contrary, the fourth reason was believed to be an alternative solution to meet these needs. Most of the authors expressed that there was a desire and need to change strategies in accounting learning to overcome existing problems and weaknesses. Creating active learning was the main topic that the authors wanted to achieve. In this case, FC was seen as an approach that could realise their expectations. It made sense due to the FC design emerging from the movement towards active learning coupled with the emergence of new technologies (Lento, 2016), and from the previous literature reviews, it was proven that FC promotes an active learning environment (Zheng et al., 2020).

### 4.2. Strategy of FC implementation

The features inherent in the FC approach had the potential to overcome various problems in accounting courses discussed in the reviewed articles. Learning materials and activities that were properly designed for both outside and inside the classroom by integrating the use of technology could lead students to be more involved in their learning process. Activities outside the classroom provided students the chance to learn actively and independently to comprehend basic concepts of new materials in order to prepare for learning in class (Brame, 2013; Limaymanta et al., 2021). In addition, FC out-of-class time was also regarded as an important factor for personal development, considering that it encouraged learning concerning different individual paces, capabilities, times and necessities (Lencastre et al., 2020). Therefore, FC could be patterned to create an active and meaningful learning experience, not only in the classroom but also outside the classroom (Blau & Shamir-Inbal, 2017). Students' pre-class readiness is important because it could influence their learning outcomes and problem-solving abilities when studying in the classroom (Huong et al., 2018), therefore the lecturers need to prepare learning activities outside the classroom properly to facilitate learning efficiency during class (Strayer, 2017).

The assignments given to students for preparation were in various forms, such as watching videos, completing worksheets, short writing and online quizzes, but in each case the assignment provides an incentive for students to come to class prepared (Brame, 2013). One key element in FC was providing incentives for students to prepare for class (Brame, 2013). Having a quiz after watching the video was an incentive for their engagement with the material before class (Seery, 2015). However, only two reviewed articles explicitly demonstrated the importance of pre-class quizzes. O'Haver (2020) supposed that the higher proportion of pre-class reading may be motivated by the grade incentive associated with the video quiz, which was worth 10%. This was consistent with Downen and Hyde (2016) who stated that greater incentives for class preparation lead to stronger outcomes.

By flipping the classroom, there was enough time in the classroom to facilitate student engagement particularly to apply the materials to comprehensive problems through many kinds of activities (Downen & Hyde, 2016; Williams et al., 2019). In this review, learning activities that were often used in class were problem-solving, case analysis, discussion, concept mapping, as well as question and answer. These activities provided an opportunity for students to apply the content of the course and result in

higher level cognitive development (Brame, 2013; Downen & Hyde, 2016). As noted by Downen & Hyde (2016), the FC approach was trusted to be more effective in application-oriented courses, including accounting.

After-class activities were covered only in a small number of articles reviewed. It was also discussed in other articles, that in general discussions and research on FC were more focused on activities before class and during class (Persky & Mclaughlin, 2017; Unal & Unal, 2017). However, after-class activities are also an important part of the student learning process, so attention needs to be paid to optimise learning. A well-designed after-class activity can support self-determination, promote intrinsic motivation, help master the material and facilitate the transfer of learning through repetitive practices (Persky & Mclaughlin, 2017).

#### *4.3. The impacts of FC implementation*

In general, the implementation of FC in accounting courses that was reported in the reviewed articles had been well designed. It was proven by the positive impacts resulting from the application of FC which showed that FC had a positive impact on learning performance, motivation, participation, interest in learning, autonomous learning ability, communication and critical thinking skills, as well as student satisfaction. Several studies using the experimental method showed that the treatment group using FC gave better results and was statistically significantly different from the control group using conventional methods. These impacts indicated that the FC approach was able to overcome existing problems in accounting courses. In addition, some articles explained that most students tend to prefer FC.

### **5. Conclusion**

The application of FC in accounting courses in higher education is based on several different reasons which indicate the need to change the learning strategies used towards active learning and utilise technology. Flipping the classroom brings the consequence that the lecturers should have the ability to design learning strategies for preparation before class, during class and after class. One important thing that must be considered in designing the application of FC is to provide incentives for students to prepare before class. The seriousness of students in preparing for learning in the classroom will determine the success of the learning process during class.

The limitations of this study are the limited number of articles reviewed. This is due to the limited facilities to access the available databases. However, the articles found have been able to provide an overview of the implementation of FC in accounting courses in higher education.

### **6. Recommendation**

The successful application of FC from the reviewed research showed that FC can be recommended to be applied to accounting courses in higher education nowadays and in the future. The integration of various active learning strategies and the utilisation of technology in FC is highly advocated so that students, as millennials, can take advantage of FC optimally. Therefore, further research on the effectiveness of using more innovative FC, especially in accounting courses, still needs to be done. Likewise, it is necessary to examine the wider impact of the use of FC other than what has been achieved in previous studies, one of which is for example regarding student learning responsibilities.

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