

FINANCIAL FEASIBILITY CANVAS (FFC): EXTENDING THE BUSINESS MODEL CANVAS AS A METHOD TO TEACH FINANCIAL FEASIBILITY STUDY IN ENTREPRENEURIAL FINANCE

**Vasu Keerativutisest, King Mongkut's Institute of Technology Ladkrabang
Triyuth Promsiri, College of Management Mahidol University**

ABSTRACT

Teaching entrepreneurial finance is a challenge, especially for new ventures. New ventures are facing many uncertainties during the process of business venturing, which leads to difficulties in estimating assumptions and projections to conduct feasibility analysis. Although there are many theories to explain that entrepreneurs always make a decision through bias and self-decision making, Feasibility analysis is still essentially important because it guides entrepreneurs make a decision through data and critical thinking.

In this study, we seek to develop an alternative method to help nascent entrepreneurs have a better understanding to be able to conduct the financial feasibility analysis. Therefore, we deploy the existing tool in entrepreneurship, which is business model canvas, as a framework. Business model canvas was selected because it is a visual tool that allows entrepreneurs to see the connection among different components of the business, and it is the main theory which has been used widely in entrepreneurship classrooms; however, the connection between business model canvas and financial feasibility study is still limited.

This study filled the gap of financial aspects of the business model canvas by proposing the 6-step analysis through the “Financial Feasibility Canvas (FFC)”. Those six steps including investment rationale, capital investment, assumptions, cashflow, financial returns, and decision, will guide learners and entrepreneurs to follow logical financial consequence until financial return calculation to assist entrepreneur’s decision-making process. The researchers then implemented this teaching method in entrepreneurial finance class. 33 entrepreneurship students participated in a series of 3-week workshop. The researchers further guided them through 6-step analysis, assign team project to come up with their own business idea and verify the possibility of their business idea through FFC. Learners agreed on the effectiveness of this teaching method in comparison with traditional methods. This study fills the void of academic linkage, promote class participation and environment, and raise the awareness of entrepreneurship students focusing on the financial aspects of business in completing the Business Model Canvas.

Keywords: Financial Feasibility Canvas, Business Model Canvas, Entrepreneurship Education, Entrepreneurial Finance, Feasibility Study.

INTRODUCTION

It has been widely recognized among entrepreneurial scholars that teaching entrepreneurship is still in demand for novel teaching approach and pedagogy. This study is focused on fulfilling the Entrepreneurial finance teaching method.

We see the limited entrepreneurial finance methods in the business idea development proofing stage. Naqvi (2011) explained that entrepreneur's financial knowledge is an important key success factor for entrepreneurship. Good understanding of finance will top up on advancement of the business and minimize business risks. Entrepreneurs with good understanding of finance will be able to make a sound decision in finance and achieve business success (Bruhn & Zia, 2013). Carswell (2009) and Fatoki (2014) further concluded that entrepreneurial finance is an essential skill and knowledge for successful entrepreneurs. However, Bruhn & Zia (2013) and Dahmen & Rodriguez (2014) further add that majority of entrepreneurs do not have a good knowledge on finance that might bring their business to financial difficulty situation. Therefore, there is a gap and opportunity to fulfill this academic need for entrepreneurship education.

Most of the time in the entrepreneurship classroom, financial analysis is usually applied at the end of the business plan creation. However, recent studies found that entrepreneurship is more about the process of effectuation and experimentation, rather than the causal and projection, especially in an uncertain business environment (Pfeffer & Khan, 2018). Therefore, we propose that there is a need for an entrepreneurial financial method at the concept validation stage. It is essential for learners to understand the importance of financial feasibility as a tool that they can experiment and experience earlier in the entrepreneurial process.

The idea of this paper is to create the operational financial feasibility analysis method as a plug-in tool for the business model canvas. We selected business model canvas as a platform because it is widely recognized in developing the business models for entrepreneurs and innovators around the world (Muller & Thoring, 2012, Lima & Baudier, 2017). During the concept creation and evaluation stage in new venture creation, it does also allow learners to experiment the feedback loop and refine their business model through the Business Model Canvas.

We begin this paper by conducting the literature review about teaching entrepreneurial finance in new venture, proposing the alternative method by proposing the Financial Feasibility Canvas ("*FFC*") as the plug-in of the Business Model Canvas ("*BMC*"), we then presenting the results from testing the FFC as an alternative teaching method in the classroom with 33 entrepreneurship students. Finally, we discuss the results and idea for future research.

LITERATURE REVIEW

Entrepreneurship Definition and Entrepreneurship Education

The origin of the fragmented concept of entrepreneurship education is derived from the different views of entrepreneurship through time. Early entrepreneurship scholars view entrepreneurship as a trait approach (Gartner, 1989) then the study is focused more on the characteristics of individuals. In this view, entrepreneurship education plays a very limited role in an entrepreneurial career because it seems that entrepreneurs are born not made. In 2000, the entrepreneurship area has shifted its focus from the traits approach to opportunity approach. Shane & Venkataraman (2000) proposed that entrepreneurship is the study of entrepreneurial

opportunities. Within this approach, entrepreneurial education is centralized by explaining how and why entrepreneurs can discover some opportunities. The concept of entrepreneurial opportunity is very impactful to the field of entrepreneurship because it has expanded many researchers to attempt the abstractness of opportunity concept itself from the cognitive approach (Keh et al., 2002; Gregoire et al., 2010; Krueger, 2007).

For the opportunity approach, the concept of entrepreneurship education is focused on the discovering, evaluating and exploiting entrepreneurial opportunity (Gautam et al., 2015). Fayolle (2009) further add that it includes all activities contributing to advance entrepreneurial mindsets, skills, attitudes. Recent studies have shifted its perspective on entrepreneurship towards more on the art of actions and design (Dimov, 2016; Romme & Reyman, 2018; Zhang & Van Burg, 2019). In the design approach of entrepreneurship, we started to see a clearer role of entrepreneurship education as a teaching method to help individuals design and create their ventures. For example, Androutsos & Brinia (2019) developed the entrepreneurship pedagogy which was built from design thinking.

Entrepreneurship Education as a Method

The concept of entrepreneurship education has become more distinguished as Neck & Greene (2011) categorized the world of entrepreneurship education into the entrepreneur world, process world, cognition world and method world. This paper supports the idea to focus more toward the method approach by developing the alternative way to teach entrepreneurship by creating a method to serve as a tool that enables learners to be able to experiment and practice, rather than only predicting and looking for precision.

The idea of teaching entrepreneurship through the method world is described carefully in their paper:

“Approaching entrepreneurship as a method means teaching a way of thinking and acting built on a set of assumptions using a portfolio of techniques to encourage creating. The method forces students to go beyond understanding, knowing, and talking. It requires using, applying, and acting. The method requires practice (P.99)”

Nevertheless, current literature review suggested that the development of entrepreneurship teaching methods is still far from its intended definition. The current review of entrepreneurship teaching methods is still built around the traditional approach, such as business plan development, entrepreneur presentation, project-based Learning, problem-based learning and games (Samuel & Rahman, 2018). It is obvious that entrepreneurship education needs a set of tools to help learners to build, create, test and modify their ideas and assumptions with practice.

Business Model Canvas as a Teaching Method in Entrepreneurship

The business model canvas (“BMC”) was developed by Osterwalder & Pigneur (2010). The business model canvas consists of 9 building blocks which are interrelated together. This tool helps individuals to be able to overlook each component of the business, while can also be served as a frame to create, adjust and modify all components of the business.

The simplicity of BMC and its ability to give a visual cognition to the audience helps entrepreneurs to be able to communicate multi-components to others. Also, the BMC framework is widely recognized and applied to many business schools around the world.

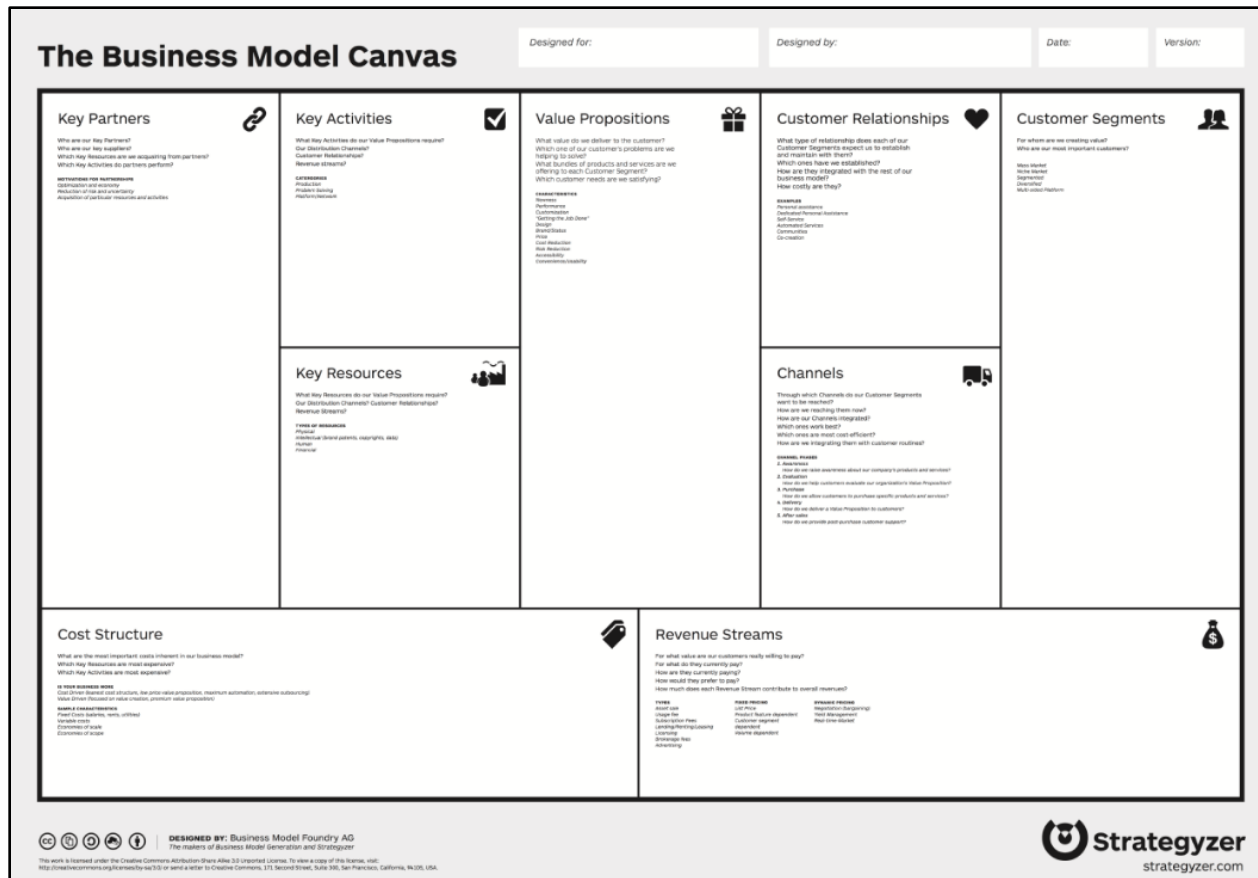


FIGURE 1
THE BUSINESS MODEL CANVAS

Recent studies have shown the successful application of the business model canvas as a method to advance the ability to teach and demonstrate entrepreneurship. For example, Vial (2016) applied to BMC to show the business model elements in Social entrepreneurship. Sparvierio (2019) advanced the concept of BMC by proposing the Social Enterprise Model Canvas ("SEMC") as the alternative business model canvas for social entrepreneurship. Joyce & Paquin (2016) designed a very interesting modification of the business model by introducing the triple layered business model canvas as a tool to design a more sustainable business model.

While the concept of applying BMC as the building block to create the entrepreneurship teaching tool seems to be widely recognized, we found limited studies to help create the practical method for financial feasibility in entrepreneurship.

Feasibility Study

The feasibility and desirability are both important in the stage of opportunity evaluation. In the area of entrepreneurship, opportunity evaluation is an essential stage in the opportunity discovery framework starting from discovering, evaluating and exploiting (Shane & Venkataraman, 2000). Previous studies explain how individuals evaluate different opportunities and make entrepreneurial decisions (e.g., Haynie (2009); Wood & Williams (2014); Welpel et al., (2012); Gruber, Kim & Brinckmann (2015); Keh et al., (2002)).

While the concept of opportunity evaluation in entrepreneurship seems enriching in the conceptual development, we found very limited studies that give a practical method about how to teach or conduct the feasibility in entrepreneurship education. Very little evidence to see the practical feasibility method in entrepreneurship education. Sukavejworakit et al., (2018), developed OETEL as the constructive method to evaluate the opportunity through the integration of feasibility analysis and experiential learning. Jackson et al., (2015) applied the business model canvas as a method to approach the way to teach entrepreneurial finance.

Extending the Business Model Canvas as a Method to Teach Financial Feasibility Analysis in Entrepreneurship

In this study, we propose the idea to develop the Financial Feasibility Canvas as a plug-in layer of the Business Model Canvas. With the research gap we mentioned earlier from the literature review part, this section illustrates the summary of justifications why we propose FFC, which is the extension of BMC, as an alternative entrepreneurship teaching method for feasibility analysis.

1. The FFC is built on the BMC framework. BMC framework has been widely accepted among scholars and students in the business school already. The idea of building the FFC through BMC will be more adoptable for learners through its familiarity.
2. The BMC can help users visually see the interrelated information which serves as the input of the financial feasibility analysis. Financial feasibility analysis is usually dealt with a lot of numerical cognition, to have visual cognition as a tool guide helps individuals to see the holistic picture and overarching framework of the analysis.
3. The BMC has been widely accepted as a tool that is suitable for new venture creation (e.g., Leschke (2013); Onken & Campeau (2016)). Since new venture creation requires a lot of trial & error, having the framework which enables users to create, adjust and modify data should be very beneficial for learners to perform the trial and error.
4. However, the BMC framework still needs room for improvement. Recent study reports that even though learners feel more comfortable to use BMC towards business plans, BMC still lacks a lot of detailed information that helps in making decisions (Turko, 2016).
5. Feasibility analysis is usually performed when information becomes more constructive. Therefore, the feasibility analysis is usually conducted at the very last stages of the entrepreneurial teaching process in the classroom, usually when the BMC is ready and students start writing the business plan. In this study, we support the idea that entrepreneurship education should be viewed as the method that learners can practice. The earlier they can practice and understand possibility and feasibility of their ideas, the sooner they can understand and re-design the business model to be equipped just in time to the market. Then, we propose the alternative way that the financial feasibility analysis should be built into the business model creation, with sufficient details at the early stage of the entrepreneurial classroom.
6. BMC presents financial aspect of the business model with net income only from the combination of revenue and cost components. Lack of cashflow aspect might lead to the financial difficulty such as cash shortage and cash overage for entrepreneurs. This paper will discuss about the usage of cashflow to calculate financial returns and add on this void for the BMC.

The Financial Feasibility Canvas (FFC): 6-Step Financial Feasibility Analysis Approach

Extending from the BMC, the researchers have proposed the Financial Feasibility Canvas (“*FFC*”) that consists of six components. The researchers extended the building blocks Cost structure & Revenue Stream in the BMC into 6 building blocks that represent the 6-step financial feasibility analysis approach for the business model including (1) investment rationale, (2)

capital investment, (3) assumptions, (4) cashflow, (5) financial returns, and (6) decision as showed in figure 2.

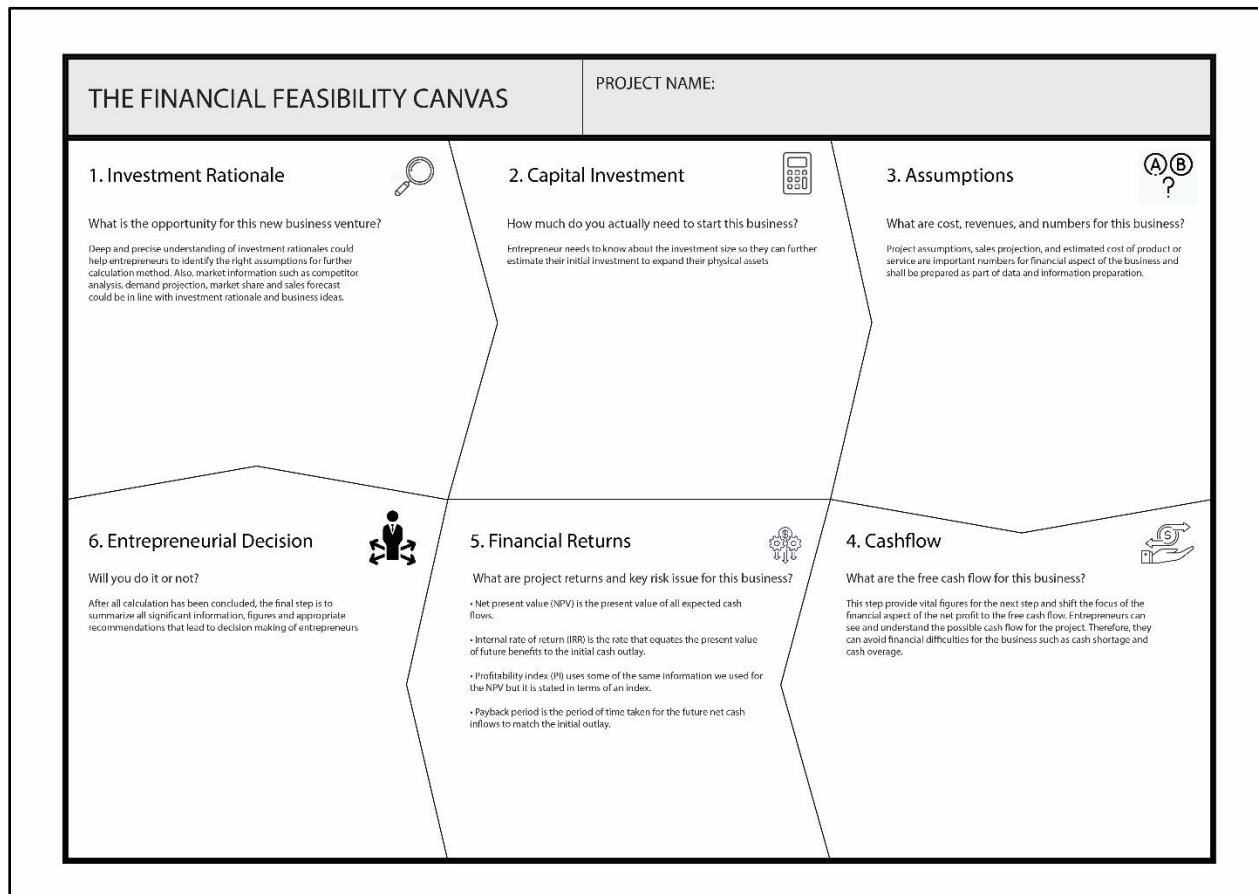


FIGURE 2
THE FINANCIAL FEASIBILITY CANVAS AS A PLUG-IN TOOL FOR THE BUSINESS MODEL CANVAS

By using the same visual style of iconography, this tool will help entrepreneurs to conceptually connect to the existing concept of business model canvas, while also be able to extend their thoughts specifically on the financial feasibility analysis part. The indicating number also demonstrates the sequential implication of how data will input and analyzed.

Step 1: “Investment Rationale” - What is the Opportunity for This New Business Venture?

Prior to the calculation part in finance, the first step is to explore the sound investment rationales. Brigham & Daves (2007) divided investment rationale universe into 7 categories including (1) replacement for maintenance of business, (2) replacement for cost reduction, (3) expansion of existing products or market, (4) expansion into new products or markets, (5) safety or environmental projects, (6) research and development, and (7) long-term contract. Potential project should align with at least one type of these key rationale areas. As Shane & Venkataraman (2000) mentioned that entrepreneurship is about the study of entrepreneurial opportunities. Therefore, it can be implied that entrepreneurs should have main focal points on expansion of existing products or market and expansion into new products or markets to capture

those entrepreneurship opportunities. Deep and precise understanding of investment rationales could help entrepreneurs to identify the right assumptions for further calculation method. Also, market information such as competitor analysis, demand projection, market share and sales forecast could be in line with investment rationale and business ideas. The first step of the FFC addresses the question “*What is the opportunity for this new business venture?*” for entrepreneurship students.

Step 2: “Capital Investment” - How much do you Actually Need to start this Business?

Entrepreneur needs to know about the investment size so they can further estimate their initial investment to expand their physical assets as well as the following working capital requirement for the business. Seitz & Ellison (2005) explained that the initial investment is expected to bring the potential benefits from the project. As the sequence of this expansion, the company will then require larger operating expenditure that results in larger working capital requirement for the company (Levy & Sarnat, 1994; Gendron & Burlingham 1989). The second step of FFC addresses the question “*How much do you actually need to start this business?*” for entrepreneurship students. & Mitch

Step 3: “Assumptions” - What are Cost, Revenues, and Numbers for this Business?

Project assumptions, sales projection, and estimated cost of product or service are important numbers for financial aspect of the business and shall be prepared as part of data and information preparation. This step needs critical thinking and fact finding for cost components and also imagination and forecasting of sales units. To cope with the variation of raw material cost, selling price and other key assumptions, average value from historical data shall be employed to diminish the effect of variation for future projection. Financial Feasibility Analysis should be based on conservative perspective (Ross et al., 2016). The following list provide example of key project assumptions; sales projection, historical product information, average selling price, raw material cost, transportation cost, foreign exchange rate, annual overhead, corporate income tax, debt to equity ratio, and interest rate. Cost estimation should be based on the conservative manner and already reflect the fluctuation for raw material price.

Application in the classroom, entrepreneurship students should collect appropriate supporting data that will assist in forming project assumptions. The third step of FFC addresses the question “*What are cost, revenues, and numbers for this business?*” for entrepreneurship students.

Step 4: “Cashflow” - What is the Free Cash Flow for this Business?

Projected cash flow statement then is constructed to see the possible free cash flow stream for the proposed business. Ross et al., (2016) explained that project cashflow should ignore sunk costs, include opportunity costs, include side effects, include working capital, include taxation, and ignore financial charges (interest and loan payment). Working capital then is calculated for the circulating capital required to meet the day to day operations of a business firm. This figure is the summation of raw material costs, labor costs, utilities cost, marketing and promotion costs and administrative costs in order to satisfy such daily operation (Vaicondam et al., 2016). The fourth step of FFC addresses the question “*What are the free cash flow for this business?*” for entrepreneurship students. This step provides vital figure for the next step and

shift the focus of the financial aspect of the net profit to the free cash flow. Entrepreneurs can see and understand the possible cash flow for the project. Therefore, they can avoid financial difficulties for the business such as cash shortage and cash overage.

Step 5: “Financial Returns” - What are Project Returns and Key Risk Issue for this Business?

Project return analysis can be done through several appraisal methods to ensure that such investment decision will add value to entrepreneurs. An appraisal method should consider all the future incremental cash flows from the project, evaluate the present value from these streams of cash flow and consider the degree of risk and uncertainty both operation and business aspect. Ross et al., (2016) further summarize the key appraisal methods as the following discussion.

1. Net present value (NPV) is the present value of all expected cash flows. For any given period of time, we collect all the cash flows both positive and negative and net them together. An investment with a positive NPV increase the entrepreneur's wealth.
2. Internal rate of return (IRR) is the rate that equates the present value of future benefits to the initial cash outlay. Where the IRR exceeds the minimum required rate of return, the project should be accepted.
3. Profitability index (PI) uses some of the same information we used for the NPV but it is stated in terms of an index (present value of cash inflows divides by present value of cash outflows). If $PI > 1.0$, this means that the investment is expected to increase entrepreneur wealth.
4. Payback period is the period of time taken for the future net cash inflows to match the initial outlay. In other word, how long it takes to get your money back. A shorter payback period is better than a longer payback period. However, there is no clear-cut rule for how short is better.

In practice, it is difficult to predict the future precisely and we may not even have good estimates of probabilities of possible outcomes. Project assumptions are influenced by a great number of factors, and the actual values may differ considerably from assumptions. Therefore, sensitivity analysis focuses analyzing the effects of changes in key assumptions on the project's financial outcomes. It is particularly concerned with factors that may lead to unfavorable consequences (adverse changes) in cost factors, such as unit cost, and benefit factors, such as selling price and market demand. Sensitivity analysis shows how project's financial outcome vary with a change in one of the assumptions, holding the other assumptions constant while scenario analysis considers the effect on the project's financial outcomes of simultaneously changing multiple assumptions (Ross et al., 2016). The fifth step of FFC addresses the question “*What are project returns and key risk issue for this business?*” for entrepreneurship students.

Step 6: “Entrepreneurial Decision” - Will You Do it or Not?

After all calculation has been concluded, the final step is to summarize all significant information, figures and appropriate recommendations that lead to decision making of entrepreneurs. Key concerns such as risk and trigger level of key assumptions that may harm the project benefits should be addressed. This step serves as an input for entrepreneurial decision and increase entrepreneurial intention that represents commitment for further business establishment action (Fini et al., 2009). In case of reject of the business idea, FFC provides a feedback loop in the next cycle once again. Entrepreneurs can move on with the next round to revalidate those cost, revenues, and numbers once again. This opportunity helps entrepreneurs to refine their business to achieve best fit and most possible outcome that add value to entrepreneur's wealth.

IMPLEMENTING THE CONCEPT IN THE CLASSROOM

As responsible lecturers for Entrepreneurial Finance, the researchers introduce the FFC in class and divide this learning journey into 3-week modules. Each week (4-hour long workshop) will focus on the definition and application of the 2 building blocks respectively according to the sequential approach of the FFC. This teaching method employed Kolb's Experiential Learning Cycle that will experience entrepreneurship learners with logical integrated steps (Kolb & Fry, 1974).

During the first week session, the researcher gives the student in each group to discuss and consolidate their business idea as a summation of their BMC. Students have to complete the first seven blocks of the BMC including value propositions, customer segments, customer relationships, channels, key partners, key activities, and key resources. These seven blocks serve as inputs for FFC. Then, FFC begin once they have agreed on their business model description. Each group has to describe and summarize their business idea and rationale in the first building block of FFC that is called "*Investment Rationale*". Investment rationale shall be compact and precise explanation for their business. This part represents the input of possibility in business and finance aspects. Students have to obtain this information from the first seven block of the BMC. After this block, students should have a clear understanding on investment rationale that support with market information. This provides sound beginning for further financial analysis for the business opportunities of entrepreneurs.

The researchers further guide the learners to list their required fixed asset investment that contribute to the business operations such as land, building, and equipment. The students provide a list of their required fixed asset. Then, investment budget for each component will be collected based on the market price. The students have a total amount of fixed asset investment that reflects precise estimation on initial investment. This component raises the awareness from entrepreneurship students on the important of cash flow since this investment represents initial investment for their business which is the void area from the BMC. This step contributes to the second building block of FFC that is called "*Capital Investment*". By the end of the first week students have settled down with the investment rationale and capital investment budget. Researchers gave an assignment for the entrepreneurship students to collect appropriate information about related assumptions as input for the second week workshop.

The second week session focuses on the third and the fourth building blocks of the FFC including "*Assumptions*" and "*Cashflow*". Researchers led the workshop to conclude important assumptions as part of financial projection. Students have to select relevant revenues and costs to the project with other estimation such as raw material cost, overhead and marketing expenses. Students have to obtain this information from cost structure and revenue structure blocks from the BMC. These assumptions should be based on proper manner or most likely option. Once all team members agreed on assumptions, the researcher introduced financial template for free cashflow calculation. The students input their assumptions and required information in the financial template and arrive at free cashflow of the investment project.

The third week session focuses on the fifth and the sixth building block of the FFC including "*Financial Returns*" and "*Decision*". The students will participate in finance workshop to cover financial appraisal calculation including Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period, and Profitability Index (PI). The students then asked to discuss about sensitive assumptions that might harm the returns of the project. Researchers then led students to analyze several sensitivity analysis and scenario analysis. Then, the students sat together in a team and finalize their decision for the business opportunity by filling up the final

building block of the FFC with their “*Entrepreneurial Decision*” that will you do it or not? Further implementation stage. The researchers further ask the student to evaluate and feedback for learning effectiveness with FFC teaching method by the end of week-3 workshop.

TESTING THE CONCEPT IN THE CLASSROOM

This study sample includes 33 international students in Thailand who participated in Entrepreneurial Finance during July until October 2020. The student's composition in the classes is an international mixture between Thai and international students such as China, Vietnam, Myanmar, India, Namibia, and the U.S. The sample has experienced in the traditional method for finance subject as well as this emerging teaching method through the FFC. The online survey utilizes a mixed-method, including both quantitative and qualitative parts. The questionnaire has divided into two sections including the effectiveness of teaching methods with a 5-Likert scale (adapted from Tu et al., 2018). Then, open-ended questions allow the student to reflect their opinions toward FFC. The following list of question assesses the effectiveness of FFC (adapted from Tu et al., 2018).

1. I think the “*Financial Feasibility Canvas Teaching Method*” is more effective than traditional teaching in promoting my class participation.
2. The “*Financial Feasibility Canvas Teaching Method*” is more effective than traditional teaching in strengthening my ability to detect problems.
3. I prefer the class atmosphere created by “*Financial Feasibility Canvas Teaching Method*” to that created by traditional teaching.
4. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” brings me more opportunities to interact with classmates and teachers.
5. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” enables me to have efficient communication with people in different fields.
6. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” is more helpful for me to brainstorm creative ideas.
7. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” allows me more time on thinking.
8. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” allows me more time on assignments.
9. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” can strengthen my ability to solve problems.
10. Compared with traditional teaching, the “*Financial Feasibility Canvas Teaching Method*” can increase my concentration in class.

RESULTS

Table 1 show the result of Learning Effectiveness of Teaching Methods on “*Financial Feasibility Canvas*” to Traditional Method. Entrepreneurship students have a strongly agreed opinion on learning effectiveness of FFC including “*strengthen my ability to solve problems*”, “*Class atmosphere*”, “*class participation*”, “*ability to detect problems*”, “*brainstorm creative ideas*” with means of 4.47, 4.30, 4.27, 4.24, and 4.24 respectively. Moreover, learners have a agreed opinion on learning effectiveness of FFC including “*me more time on thinking*”, “*increase my concentration in class*”, “*brings me more opportunities to interact with classmates and teachers*”, and “*allows me more time on assignments*” with mean of 4.06, 4.06, 3.88, and 3.70 respectively. To illustrate the validity of scale being used in this research, Cronbach’s alpha has been analyzed and resulted in 0.851 which can imply reliability of this scale.

Table 1 LEARNING EFFECTIVENESS OF TEACHING METHODS ON “FINANCIAL FEASIBILITY CANVAS” TO TRADITIONAL METHOD			
Items	Median	Mean	Descriptive Rating
I think the “Financial Feasibility Canvas Teaching Method” is more effective than traditional teaching in promoting my class participation.	4.00	4.27	Strongly Agree
The “Financial Feasibility Canvas Teaching Method” is more effective than traditional teaching in strengthening my ability to detect problems.	4.00	4.24	Strongly Agree
I prefer the class atmosphere created by “Financial Feasibility Canvas Teaching Method” to that created by traditional teaching.	4.00	4.30	Strongly Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” brings me more opportunities to interact with classmates and teachers.	4.00	3.88	Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” enables me to have efficient communication with people in different fields.	4.00	4.30	Strongly Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” is more helpful for me to brainstorm creative ideas.	4.00	4.24	Strongly Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” allows me more time on thinking.	4.00	4.06	Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” allows me more time on assignments.	4.00	3.70	Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” can strengthen my ability to solve problems.	5.00	4.45	Strongly Agree
Compared with traditional teaching, the “Financial Feasibility Canvas Teaching Method” can increase my concentration in class.	4.00	4.06	Agree

The following paragraphs present the result of the open-end question for Learning Effectiveness of the FFC.

“The financial feasibility study through 6-step approach is the most effective method for the continuous growing business - especially small business that would like to increase on its sales or market shares among competitive businesses. The strategies would be beneficial to apply on the work or marketing section. Moreover, we could also anticipate our company's outcomes in the near future by using the data as well as ratio in order to forecast the NPV of the business. Hence, these are the positive feedbacks on the financial feasibility canvas.”

“The 6 step approach is pretty much the valuable book to guide us to do feasibility study. As well as the details of each steps are amazing such as the seven types of project classification in step 1 and the answer to questions that might occur during feasibility study such as the right assumption could be made by understand project rationales and classification.”

“In my opinion, it is very useful in terms of brainstorming and considering the project as it allows us to focus on each project with a lot of gathered information. We can see and think clearly throughout the project, projection, and making a recommendation right away. It also allows us to think in the process and align our thoughts with supporting evidence nicely. For some people who are new to this field, it can tell them where to start and what steps they should

take as the guideline for the good project analysis which reduces the chance of getting confused. It is the easy way of looking professional in the future career, only knowing all basic financial knowledge such as how to find NVP, CCC, and other lots of information sometimes won't create the good looks if we don't know when and where to use them. This is a great tool and guideline for giving relevant information to them and preventing the chance of choosing the wrong analysis showing to the management team."

"Before the investment decision, the feasibility study comprehensively demonstrates whether a project is realistic, practical and reliable in technology and profitable in property by means of multi-disciplinary means, and makes the analysis and evaluation of environmental impact, social benefit and economic benefit, so as to provide scientific basis for investment decision-making."

"The financial feasibility canvas has indeed greatly stimulated my learning enthusiasm and made me think more actively."

"It helps us to formulate our competitive assumptions and analysis to match one of seven projects. It should also be in a conservative view and the results that the company has received for investment decisions in good projects for the company in the future."

"I much prefer problem-solving than remembering theoretical knowledge, and the financial feasibility canvas allows me to problem solve."

"I feel thankful for having such 6 step approach, it gives me a clear direction on what we have to do, what to do first, and what is next, and we can make sure we don't miss anything important. Like the first step, should start from the rationale of the project, if the project doesn't give any benefit, or have no rationale, there is no point to go further, I like how it focuses on the rationale of the project first like you have to pass this first to go further so that we don't waste time calculating on what's not going to work."

"Since I learned the financial feasibility study and 6-step approach, I get know and can understand more that teacher taught us in the class. It helps me to figure the course out really clearly, and it's really helpful for my future career, for example, how to make an proper investment, how to help owners to increase their wealth, and how to make an credible study report. That's what I can learn from it."

"Financial Feasibility Canvas is a skill set for life. It is a very important financial analysis method that helps aid finance managers in decision-making on a certain project by evaluating all the financial aspects of it to narrow down all the business alternatives. As a student who is aspiring to work in the corporate finance industry after graduating, I am very glad that i will be equipped with this skill after this term as this financial feasibility study skill will help me become a good all round finance manager."

"It is detailed and easy to address problems, by using this approach; we can analyze the project step by step rationally and find out the most feasible one."

"Clear, concise and well explained. Simplified to make it easy to understand."

DISCUSSION

In this paper we agreed with the current study to view entrepreneurship education as method. We also fill in the gap of study in entrepreneurial education in entrepreneurial finance. We also expanded the knowledge in the area of entrepreneurship by extending BMC by inventing FFC as the alternative tool to teach Entrepreneurial finance. Based on the findings from quantitative and qualitative research, FFC plays an important role in delivering financial knowledge for entrepreneurship students. According to learning effectiveness assessment (Tu et al., 2018), it can be observed that learners strongly agree and agree in all aspect of learning effectiveness assessment. Results from open-ended questions present the similar opinion that FFC is appropriate logical sequential steps to fulfill the gap of entrepreneurs in finance aspect. We suggest the further study to apply and validate FFC in various aspects. For example, the future study can also apply FFC in various industries, or future research can also take a deeper study of each building block to elaborate more details about teaching method in various contexts. We also welcome creative scholars to expand the FFC model from its design and also teaching method. Finally, we hope that the FFC method will eventually help learners to be more successful in their entrepreneurial finance study.

REFERENCES

- Androutsos, A., & Brinia, V. (2019). Developing and piloting a pedagogy for teaching innovation, collaboration, and co-creation in secondary education based on design thinking, digital transformation, and entrepreneurship. *Education Sciences*, 9(2), 113.
- Brigham, E. & Daves, P. (2007). *Intermediate Financial Management*. 9th ed. Thomson.
- Carswell, A.T. (2009). Does housing counseling change consumer financial behaviors? Evidence from Philadelphia. *Journal of Family and Economic Issues*, 30(4), 339-356.
- Dahmen, P., & Rodríguez, E. (2014). Financial Literacy and the Success of Small Businesses: An Observation from a Small Business Development Center. *Numeracy: Advancing Education in Quantitative Literacy*, 7(1), 1-12.
- Dimov, D. (2016). Toward a design science of entrepreneurship. In *Models of start-up thinking and action: Theoretical, empirical and pedagogical approaches*. Emerald Group Publishing Limited.
- Fatoki, O. (2014). The financial literacy of micro entrepreneurs in South Africa. *Journal of Social Sciences*, 40(2), 151-158.
- Fayolle, A. (2009). Entrepreneurship education in Europe: Trends and challenges. In *Presentation on OECD LEED Programme Good Practice Workshop*.
- Fini, R., Grimaldi, R., Marzocchi, G.L., & Sobrero, M. (2009). The Foundation of Entrepreneurial Intention.
- Gartner, W.B. (1989). Some suggestions for research on entrepreneurial traits and characteristics. *Entrepreneurship Theory and Practice*, 14(1), 27-38.
- Gautam, M.K., Singh, D., & Kumar, S. (2015). Entrepreneurship education: concept, characteristics and implications for teacher education. *Shaikshik Parisamvad*, 5(1), 21-35.
- Gendron, G., & Burlingham, B., (1989). The Entrepreneur of the Decade: An interview with Steven Jobs, Inc.'s Entrepreneur of the Decade, 114-128.
- Gregoire, D.A., Barr, P.S., & Shepherd, D.A. (2010). Cognitive processes of opportunity recognition: The role of structural alignment. *Organization Science*, 21(2), 413-431.
- Levy, H., & Sarnat, M. (1994). *Capital investment and financial decisions*. Pearson Education, New York.
- Haynie, J.M., Shepherd, D.A., & McMullen, J.S. (2009). An opportunity for me? The role of resources in opportunity evaluation decisions. *Journal of Management Studies*, 46(3), 337-361.
- Jackson, W.T., Scott, D.J., & Schwagler, N. (2015). Using the business model canvas as a methods approach to teaching entrepreneurial finance. *Journal of Entrepreneurship Education*, 18(2), 99.

- Joyce, A., & Paquin, R.L. (2016). The triple layered business model canvas: A tool to design more sustainable business models. *Journal of Cleaner Production*, 135, 1474-1486.
- Keh, H.T., Der Foo, M., & Lim, B.C. (2002). Opportunity evaluation under risky conditions: The cognitive processes of entrepreneurs. *Entrepreneurship Theory and Practice*, 27(2), 125-148.
- Krueger Jr, N.F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123-138.
- Kolb, D.A., & Fry, R.E. (1974). Toward an applied theory of experiential learning: MIT Alfred P. Sloan School of Management.
- Leschke, J. (2013). Business model mapping: A new tool to encourage entrepreneurial activity and accelerate new venture creation. *Journal of Marketing Development and Competitiveness*, 7(1), 18-26.
- Lima, M., & Baudier, P. (2017). Business model canvas acceptance among French entrepreneurship students: Principles for enhancing innovation artefacts in business education. *Journal of Innovation Economics Management*, 23(2), 159-183.
- Bruhn, M., & Zia, B. (2013). Stimulating managerial capital in emerging markets: the impact of business training for young entrepreneurs. *Journal of Development Effectiveness*, 5(2), 232-266.
- Muller, R.M., & Thoring, K. (2012). Design thinking vs. lean startup: A comparison of two user-driven innovation strategies. *Leading Through Design*, 151, 91-106.
- Naqvi, S.W.H. (2011). Critical success and failure factors of entrepreneurial organizations: Study of SMEs in Bahawalpur, Pakistan. *European Journal of Business and Management*, 3(4), 96-99.
- Neck, H.M., & Greene, P.G. (2011). Entrepreneurship education: known worlds and new frontiers. *Journal of small Business Management*, 49(1), 55-70.
- Onken, M., & Campeau, D. (2016). Lean startups: Using the business model canvas. *Journal of Case Studies*, 34(1), 95.
- Osterwalder, A., & Pigneur, Y. (2010). Business model canvas. *Self published. Last*.
- Pfeffer, L., & Khan, M.S. (2018). Causation and effectuation: an exploratory study of New Zealand entrepreneurs. *Journal of Technology Management & Innovation*, 13(1), 27-37.
- Romme, A.G.L., & Reymen, I.M. (2018). Entrepreneurship at the interface of design and science: Toward an inclusive framework. *Journal of Business Venturing Insights*, 10, e00094.
- Ross, S.A., Westerfield, R.W., Jordan, B.D., Lim, J., & Tan, R. (2016). *Fundamentals of corporate finance*. New York, NY : McGraw Hill Education.
- Samuel, A.B., & Rahman, M.M. (2018). Innovative teaching methods and entrepreneurship education: A review of literature. *Journal of Research in Business, Economics and Management*, 10(1), 1807-1813.
- Seitz, N., & Ellison, M. (2005). Capital budgeting and long-term financing decisions. Mason, Ohio: Thomson/South-Western, USA.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-227.
- Sparviero, S. (2019). The case for a socially oriented business model canvas: The social enterprise model canvas. *Journal of Social Entrepreneurship*, 10(2), 232-251.
- Sukavejworakit, K., Promsiri, T., & Virasa, T. (2018). OETEL: An innovative teaching model for entrepreneurship education. *Journal of Entrepreneurship Education*, 21(2), 1-11.
- Tu, J.C., Liu, L.X., & Wu, K.Y. (2018). Study on the learning effectiveness of Stanford design thinking in integrated design education. *Sustainability*, 10(8), 2649.
- Turko, E.S. (2016). Business plan vs business model canvas in entrepreneurship trainings, a comparison of students' perceptions. *Asian Social Science*, 12(10), 55-62.
- Vial, V. (2016). A business model canvas for social enterprises. *Sains Humanika*, 8(1-2).
- Welpe, I.M., Spörrle, M., Grichnik, D., Michl, T., & Audretsch, D.B. (2012). Emotions and opportunities: The interplay of opportunity evaluation, fear, joy, and anger as antecedent of entrepreneurial exploitation. *Entrepreneurship Theory and Practice*, 36(1), 69-96.
- Wood, M.S., & Williams, D.W. (2014). Opportunity evaluation as rule-based decision making. *Journal of Management Studies*, 51(4), 573-602.
- Vaicondam, Y., Anuara, M.A., and Ramakrishnanb, S., (2016). Impact of Capital Investment on Working Capital Management. *Journal of Advanced Research in Social and Behavioural Sciences*. 3(1), 20-33.
- Zhang, S.X., & Van Burg, E. (2019). Advancing entrepreneurship as a design science: developing additional design principles for effectuation. *Small Business Economics*, 1-20.