International Food and Agribusiness Management Review
Volume 25, Issue 4, 2022; DOI: 10.22434/IFAMR2021.0141

Received: 16 November 2021 / Accepted: 14 March 2022

Students' perception towards IFAMA agribusiness case study competition: do culture, discipline, and training experience matter?

RESEARCH ARTICLE

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Abstract

Case study competition is an effective tool used in higher educational institutions to augment students' learning experience. Although many studies have explored this phenomenon in business and management discipline, no study has been conducted in agribusiness yet. The current research is conducted to explore students' perceptions towards agribusiness case study based on cognitive ability, affective ability and development ability. It further explores how cultural difference, students' discipline, and training experience influence participants' perceived benefits. Using online survey and a face-to-face interview, it selected 65 participants who had the experience of the agribusiness case study competition. According to students perception, it is apparent that culture had shown main effect in all aspects, while discipline only made a significant difference in development ability. The qualitative analysis unveiled that students preferred to be trained by advisors belonging to field of agricultural economics and management, and are enthusiastic to deal with the real business world issues, and also hold experience of past competitions. Based on these findings, this study may provide guidelines to educators and organizers to improve the case study method of learning and teaching, and efficiently planned the strategies required for competition.

Keywords: case study competition, agribusiness, culture, discipline, training experience
JEL code: Q13, I23

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[1] Nanjing Agricultural University has the tradition in joining IFAMA case competition since 2012 and had won the championship twice. The third author attended the competition in 2016 while the first and second authors both have rich experience in supervising the teams.

1. Introduction

Over a century ago, case-based learning, an active approach, was primarily introduced by Harvard Business School. In education, this approach is demarcated as a well-recognized co-curricular activity that offers students an additional opportunity to improve their experiences and aptitudes towards the issues happening in their forthcoming lives (Maier-Lytle *et al.*, 2010). A case study is defined as scenarios that apply the concepts learned in the classroom to actual life situations (Beckisheva *et al.*, 2015). It encompasses the extent and intensity of time that students devote to meaningful activities and, in turn, influencing their learning outcomes, such as boosting their critical thinking and intensifies their abilities to cope with multifaceted worldly problems (Beckisheva *et al.*, 2015; Herreid, 2011; Kuh *et al.*, 1991). The main aim of case study competitions is to encompass the action-based learning, and experiential-based problem-solving capabilities of students that give them benefits both personally and professionally beyond the class boundary (Burke *et al.*, 2013; Gamble and Jelly, 2014).

In the prevailing literature, business schools have given their due attention to case study competitions (Ballantine and Larres, 2004; Beckisheva *et al.*, 2015; Dorn, 1999; Kolachi, 2013; Libby, 1991; Martínez-Cañas *et al.*, 2012; Swanson and Morrison, 2010). Despite being developed and used in an array of business and management disciplines (Mesney, 2013; Penn *et al.*, 2016), this method has been employed in various other domains of social sciences such as economics (Ray, 2018) and legal education (Clarence *et al.*, 2014), etc. Case study method is well thought-off to stimulate cognitive, affective, and transferable skills of students (Libby, 1991), accelerate the knowledge (Jalgaonkar *et al.*, 2012), assist students to link theory with practice (Yadav *et al.*, 2010), and intensify their critical thinking (Harrison, 2012; Healy and Mccutcheon, 2010; Yadav *et al.*, 2010). These factors are not related to the classroom but beyond the classroom, even in competitive situations. Cognitive benefits include problem-solving skills, the ability to deal with ambiguity, and an understanding of the real world problems. Benefits at the affective level demonstrate students' motivation in the subject learning, interest in the material, and development of confidence. Skill development refers to oral and written skills, communication skills, and peer interaction within the study group. The cognitive benefits and skill development defined by Libby (1991) are transferable across other disciplines (Rocha, 2015) and are highly valued by employers.

In a case study competition, participants are encouraged to critically analyze the real-life problem within a small group discuss with their peers, and present their perspectives under a competitive environment. This leads to improvement of their skills such as time management skills, negotiation, leadership, and skills to coordinate and collaborate within a short time and eventually lead them to deal the real future work situations (Porter and Swing, 2006). Additionally, this intense, problem-based educational experience encourages students to adopt macro-level perspectives instead of focusing on individual components (Ambrose *et al.*, 2010; Gulley and Jackson, 2015). This characteristic further improve participants' practical ability to a higher level. For instance, in the case-based learning method, students are invited on a voyage to determine the possible way out to real-life problems independently (Osigweh, 1985) without the intrusion of mentors (Prince *et al.*, 2007).

In the existing literature, the importance of the case study method has been proved successful in the classroom environment by many researchers (Bowe *et al.*, 2009; Healy and Mccutcheon, 2010). The past decade has evidenced the increasing popularity of case study competitions among college and university students across regions. The central concept is to equip students with practices for success in the workplace, such as practices that assist students in carrying out research; gain a more profound knowledge, boosting analytical and communication skills and then encourage them to apply such learning skills outside the classroom in real-world settings (Hart Research Associates, 2013). Taking Loreal Brandstorm as an example, it has attracted more than 95,000 students from 360 universities across 58 countries spanning the years 1992 to 2016 and then transferred students to the labor market (Arum and Roksa, 2011). In this way, educators aligned themselves and their students with the industry (Irwin *et al.*, 2019). So, it is pertinent to say that this kind of competition can serve as a bridge to bring academia and industry together and accelerate knowledge

transference between both sectors (Saunders and Machell, 2000). Firstly, these competitions can provide a good chance for students to understand the real business problem, and even provide them with feedback and recommendations from the company (Menna, 2010). Secondly, case-based competition is also a prominent teaching strategy for educators in addressing complex management problems faced by companies and help companies in resolving those problems (Burke *et al.*, 2013).

In the prevailing literature, sufficient literature provides evidence concerning the effectiveness of the case method as an active learning approach across numerous disciplines. Recently, Bi *et al.* (2019) examined the case-based learning method in postgraduate students of medical oncology. Comparatively, orthodox teaching strategy, found it superior in improving students' problem-solving ability. Another qualitative study exploring the effectiveness of case studies was conducted by Ozdilek (2014) on a small group of teachers belonging to pre-service chemistry. The qualitative findings unveiled that the participants conveyed better research capabilities, cognitive skills, and verbal communication. Another study conducted by Ruey *et al.* (2012) revealed that students from the management department revealed the case study beneficial in accelerating their critical thinking. Harman *et al.* (2015), through an evaluation of 426 written feedbacks and three focus group discussions from the nutrition department, found that case-based learning can increase cognitive skills. Ozturk and Debelak (2008) reflected that competitions among students inspire and motivate them to learn from their failures and thrive through consistent hard work and determination.

Though the case study competitions are mainly conducted in the field of finance, accounting, marketing, business and natural science, etc. As far agribusiness is concerned, no study has been conducted before. Agribusiness can extend the agricultural value chain, provide employment opportunities, and stimulate economic growth. In this vein, the agribusiness case competition can provide opportunities to students who are specialized in the agricultural field to gain deeper insights of business world, and also to students of economics and management discipline to broaden their vision regarding agriculture. This competition can lead students of both fields to increase their understanding of core agricultural and economics principles and enhance self-motivation (Cameron *et al.*, 2012; Sawyer *et al.*, 2000), especially for undergraduate students who are less aware of case-based method and its effectiveness. It is also crucial to point out that, comparatively common case competition that merely requires financial management and analytical skills; participants for agribusiness case competition are required to be equipped with both agricultural science and management knowledge. It increases the difficulty of participants having the different educational backgrounds to cooperate within a short time.

Moreover, in the previous studies, cultural difference is not considered when evaluations of case competition are made. Culture is referred as the shared perception of the social environment where people's behavior, interaction, and relationships with others are shaped (Hofstede, 2001; Sauro *et al.*, 2019). The learning objectives, and attitudes of students largely depend on the cultural difference. Eastern culture was affected heavily by Confucianism, which advocates obedience (Nguyen *et al.*, 2006). Collective cultures, characterized by in-group membership and strong solidarity and interdependence among their group members, while in individualistic cultures, independence, competition, and hedonism are highly valued (Biemans and Van Mil, 2008). Asian cultures like China exhibit an explicit higher level of collectivism, while individualism is more common in Western cultures such as the US, Canada, and European countries (Marambe *et al.*, 2012). In the competitive environment, the role of culture in affecting participants' performance is more prominent. Multi-culture is widely influencing the way enterprise works, and it dramatically shapes the organizations and even influence the staff interaction within the network (Hofstede, 2001).

Keeping in view the above discussion, it is evident that there is harmony between scholars, learners, and educators regarding the effectiveness of the case method. The literature on evaluation of case study competition is sparse; the most related work was conducted by Sayani *et al.* (2017). However, their research scope was only limited to undergraduate students in the United Arab Emirates, and the study solely targeted the general case competition. The current study makes extension in the following aspects: firstly, it includes various students ranging from undergraduates to graduates, as well as MBA students. And research scope is enlarged

to nine countries. In this case, culture and discipline difference can be tested among groups. Theoretically, learning activities conducted in culturally mixed groups can augment student learning quality and create opportunities for optimistic intercultural learning (Vita, 2001). Secondly, it concentrates on agribusiness case competition instead of the general one. As far as it is concerned, no study has been conducted in this area before. The agribusiness case competition is a simulation of the real business world, learning of how students behave and perceive through case study competition adds value to their future careers. So the current study is the pioneer that attempts to explore students' perception towards agribusiness case competition. Thirdly, it improves the research method by employing both quantitative and qualitative measures, which makes the research results more convinced. So, unlike the previous researches, the current research is an addition to the existing literature by exploring the concerned phenomenon from an international perspective. Specifically, the study is designed to address the following research questions:

RQ1: What benefits students perceive from agribusiness case study competition in their cognitive ability, affective ability, and development ability?

RQ2: How does students' cultural background influence their perceived benefits from such case competition?

RQ3: Is there a difference among students from different educational disciplines when evaluating the benefits, especially for students specialized in agriculture-related discipline?

RQ4: What type of training and kind of mentor, do students prefer for the training of agribusiness case competition?

The rest of this paper is organized as follows: the next part provides the background of International Food and Agribusiness Management Association. In the subsequent part, detailed methodology used in this research is provided, following by results and discussion. In the last section, practical implications and limitations based on the empirical findings are also presented.

1.1 Background of IFAMA agribusiness case competition

The International Food and Agribusiness Management Association (IFAMA) is one of the world's most influential organizations in the spectrum of agribusiness, with members from over 50 countries. The IFAMA case competition is an integral part of its annual conference and agribusiness-related case competition provides an international platform to students to show their knowledge to the international agribusiness community. Students specialized in different educational disciplines such as marketing, finance, accounting, agricultural science, food science, and related majors from various universities in the form of team participate in this competition. In addition, an advisor, usually the faculty member of the university staff is also included in the team. The job of the team advisor is to choose appropriate students and train them to participate in this competition. The qualified students are required to work in a group of 3-5 people on a complex case faced by real-world agribusiness companies and then present their perspectives, analysis, and recommendations to a jury in the form of a limited PowerPoint. The panel consists of people from both the industry, such as top management level or consultants and academics personnel. The jury evaluates participants' performance from several aspects: analytical process, the case solution, presentation skills, and the answer part. The real case in the competition comes from an actual organization or corporation which meets a wicked business problem. The case competition has a preliminary round and a final round. In the first stage, student teams are given a case they have not seen before and are sequestered for a limited number of hours. Those who survive the preliminary round will further analyze the same given case in the second stage. Table 1 lists the history of this competition.

Table 1. List of 14 IFAMA case study competition (https://www.ifama.org/student-case-history).[1]

No	Year	Venue	Country	Number of teams	Winner(s)
1	2006	Unversidad de Buenos Aires	Argentina	6	South Africa Combined Team
2	2007	University of Parma	Italy	9	USA Combined Universities
3	2008	Santa Clara University	USA	6	International Team
4	2009	Corvinus University of Budapest	Hungary	7	University of Guelph & Santa Clara University
5	2010	Boston University	USA	13	University of Guelph
6	2011	University Bonn	Germany	10	Kansas State University
7	2012	Shanghai Jiaotong University	China	17	Nanjing Agricultural University
8	2013	Georgia Southwestern State University	USA	22	Santa Clara University
9	2014	The University of Cape Town	South Africa	20	Purdue University
10	2015	Saint Paul	USA	20	Michigan State University
11	2016	Aarhus University	Denmark	25	Santa Clara University World Team Combined Universities New Mexico State University
12	2017	Miami University	USA	20	University of New England Team South Africa Michigan State University
13	2018	Unversidad de Buenos Aires	Argentina	20	Michigan State University University of New England International team University of Guelph Universidad ESPAE
14	2019	Zhejiang University	China	21	Nanjing agricultural University South Dakota State University University of New England

[1] IFAMA case competition changed its rule in 2016. From 2006 to 2015, students competed in a mixed group, so there was just one team of winner every year. In 2016 and 2017, students were divided into 3 groups, namely 'advanced graduate', 'graduate intermediate' and 'undergraduate', and each group had its winner. In 2018, another two groups 'young professionals' and 'Spanish teams' were added in the group category.

2. Methods and materials

2.1 Data sources and sampling participants

In June 2019, data was gathered by face-to-face interviews and an online survey from students who had the experience of joining the case competition. The interview was held during the 2019 IFAMA conference and each interview lasted for half an hour. Online survey was sent by emails to participants of previous years. So, the sample participants were from different timeline. Both the face-to-face interview and online survey used the same questionnaire. In order to make the major and cultural background of participants more diversified, we used a random way to choose the sample. A total of 71 participants were recruited at that time, and finally, 65 effective samples were obtained. 6 samples were removed because of insufficient or missing information. Thus, the completion rate of this research was approximately 91.55%. Students from the diverse cultural backgrounds joined the competition. So keeping in view this aspect, students from different backgrounds were selected in the current study.

2.2 Study items

The participants were asked for information in two sections. The first section comprises of basic demographic information, including age, gender, nationality and degree discipline. Questions concerning participation in training before the case study competition also included in this section, which covers duration, type, content, background of mentors, and internship. Participants were also asked to describe their ideal training mode using open-ended questions within this section.

The other section comprises of questions, mainly to explore participants' perception towards case study competition. The questionnaire was designed to include three dimensions: cognitive benefits, affective benefits, and development benefits. All these questions were answered on a five-point Likert scale, ranging from 1='strongly disagree' to 5='strongly agree' by following the study of Ballantine and Larres (2004). Based on the research purpose and content, some changes were made in the specific items of these three benefits. In the context of cognitive ability, 'improve judgement skills', 'integrate major concepts of course', and 'question conventional practice' were removed while 'financial analytical skills', 'mathematical programming skills', 'simulation skills' were added. Likewise, 'independent learning' was introduced into affective ability evaluation. For development ability, 'questioning and logic skills' and 'library skills' were evaded, while 'information searching skills', 'group work and collaboration skills', 'PowerPoint skill', 'ability to cope with unexpected situation', 'manage time', 'work under pressure', 'learn from others', 'accept others' opinions', 'develop leadership' and 'adapt to other work' are added.

2.3 Method

To assess participants' perception towards case study competition by having different skills were analyzed by using mixed ANOVA analysis. Compared with a simple ANOVA model, mixed ANOVA analysis allows to exploration of both between-unit ANOVA and a within-unit ANOVA. A mixed ANOVA analysis fit this study in exploring how different characteristics of participants affecting their perception towards different abilities. Specifically, culture (eastern vs western), training (with training experience vs without training experience) and discipline (agriculture-related vs non-agriculture) are between-subject variable while perceived benefits (cognitive ability, general ability and development ability) are within-subjects factor.

3. Results

3.1 Summary statistics

Table 2 presents the distribution of respondents' with their affiliations. The statistics show that total of 65 participants got experience in global agribusiness case competition. Among them, 44.62% were female; the youngest respondent was 19 years old, while the eldest was 39 years old. Respondents who participated belonged to nine countries, including America, Australia, Canada, China, Ghana, Italy, Malaysia, New Zealand, and South Africa. In terms of education, about 33.85% of the respondents were undergraduate students, 36.92% were graduate students, 13.85% were PhD students. The most common majors reported were: agricultural economics (29.23%), agribusiness (16.92%), business administration (9.23%), food science (7.69%), economics (6.15%), and marketing (4.62%). Generally, they were from 18 different universities.

3.2 Results of cognitive ability

In the cognitive ability (Table 3), the findings show that four highest-ranked cognitive benefits are mainly associated with the usage of knowledge. Specifically, students perceived that the experience of case study had greatly enhanced their ability to integrate different knowledge, combine theory with practice, enhance knowledge of subjects learned, and helped them to solve different problems. In addition, participants also acknowledged that this case study analysis also provided them with a picture of the real business world, enhanced their critical thinking and conceptual thinking abilities, and enabled them to deal with uncertain

Table 2. Sample characteristics.

Country	University name	Percentage
Australia	Adelaide University	4.62
New Zealand	Auckland University of Technology	1.54
New Zealand	Massey University	6.15
China	Nanjing Agricultural University	35.38
China	Nanjing University	1.54
USA	New York University	1.54
USA	Northeastern University	1.54
China	Renmin University of China	1.54
USA	University of South Dokota State	4.62
South Africa	Stellenbosch University	3.08
Sweden	Umeå universitet	1.56
Australia	University of New England	9.23
USA	University of Texas at Austin	1.54
New Zealand	University of Canterbury	1.54
Italy	University of Foggia	6.15
Canada	University of Guelph	10.77
South Africa	University of Pretoria	3.08
USA	University of South California	1.54
China	Zhejiang University	3.06

Table 3. Students' perception of cognitive ability from case study competition.

Benefits	Mean	Std. deviation
Integrate different knowledge	4.431	0.637
Enhance understanding of subjects learned	4.262	0.756
Gain insights into 'real world' business	4.215	0.760
Deal with uncertainty and ambiguity	4.154	0.734
Make decision with incomplete information	4.138	0.808
Identify relevant data	4.015	0.673
Conceptual thinking	4.172	0.703
Critical thinking	4.185	0.682
Problem identification	4.231	0.806
Synthesis skills	4.169	0.720
Consider from multiple perspectives	4.077	0.777
Analytical skills	4.231	0.766
Problem-solving skill	4.246	0.662
Multiple solution towards a problem	4.092	0.678
Distinguish between opinions and facts	3.831	0.720
Apply knowledge to new and unique circumstances	4.046	0.759
Better understand management problem environment	3.954	0.856
Financial analysis skills	3.461	1.032
Mathematical programming skills	2.692	0.999
Simulation skills	3.446	1.160

situations. These findings correspond well with the study of Sachau and Nass (2010), Iahad *et al.* (2013), and Jalgaonkar *et al.* (2012). They also evidenced that case study methods are conducive to apprehend the subject matter and complement intellectual curiosity. However, it is worth noticing that students believed that their ability in mathematical programming, financial analysis, simulation, and distinguishing between facts and opinions were not improved significantly from participating in case study competition. It may be due to the fact that these skills are not so demanding in the competition process.

3.3 Results of affective ability

Under the affective ability dimension (Table 4), most of the items within these 8 benefits had a combined agreement (agree and strongly agree) percentage of higher than 80% except for the interest in the subject, attendance in seminars, and motivation in agricultural management learning, which had a combined agreement percentage of 70.77, 67.19 and 78.46%, respectively. These findings partially corresponded to those of Ballantine and Larres (2004). All the items exhibited a standard deviation less than 1. It reflects the point that students who had the experience of case study competition merely treated this competition as isolated learning events and not connected other learning programs conducted in their universities.

3.4 Results of development ability

Under the development ability dimension (Table 5), it is encouraging to note that students believed that experience in agribusiness case competition had important positive effects on their abilities in collaborating working under pressure, in a group and making presentations, etc. However, relatively low rankings is reported for data process skills, written skills, and adaption to other work, whose mean value is less than 4. It may be indicative of the requirements of the competition. Also, data analysis in the IFAMA case study competition was relatively less demanding as compared to other competitions. Thus, participants valued these dimensions as less beneficial. In contrast, preparing presentations within a small group in a competitive environment were among the most demanding parts of this competition. This was in line with Herreid (2011), Lee and Lim (2012), and Svinicki and McKeachie (2011) who stated that peer-to-peer interaction in a small group encourages students to build team learning and intimate them to achieve a common goal.

3.5 Results of mixed ANOVA

A mixed ANOVA was employed using Stata 14 (StataCorp LLC, College Station, TX, USA) with culture (eastern, western), training (with training experience, without training experience), discipline (agriculture-related, non-agriculture), and perceived benefits (cognitive ability, affective ability, and development ability) as between-subjects factor. Table 6 shows the mean value and standard deviation broken down by each factor, as well as results of ANOVA test. Figure S1, Figure S2, and Figure S3 portray the plot patterns of perceived cognitive ability, general ability, and development ability in each research role groups. In each

Table 4. Students' perception of affective ability from case study competition.

Benefits	Mean	Std. deviation
Motivate in agricultural management learning	3.969	0.728
Interest in subject learned	3.892	0.850
Enhance confidence	4.200	0.712
Involvement in learning process	4.231	0.679
Encouragement to attend seminars	3.813	0.753
Enhance performance in seminar discussion	4.123	0.761
Self-learning ability	4.077	0.714
Independent learning	4.031	0.829

Table 5. Students' perception of development ability from case study competition.

Benefits	Mean	Std. deviation
Information searching skills	4.138	0.747
Data process skills	3.563	0.906
Presentation skills	4.438	0.588
Information summary skills	4.262	0.567
Communication skills	4.277	0.673
Group work and collaboration skills	4.415	0.583
Written skills	3.431	1.060
PowerPoint skills	4.169	0.601
Ability to cope with unexpected situation	4.277	0.718
Manage time	4.188	0.833
Work under pressure	4.462	0.588
Learn from others	4.323	0.664
Accept others' opinions	4.123	0.820
Develop leadership	4.138	0.682
Adapt to other work	3.954	0.779

figure, the red plot in the boxplot represents the median and length of the line is determined by the lower and upper quartiles. For the visualization purpose, a scatterplot is also added to present the observed value.

The results reveal that a significant effect of culture difference is found in all the three groups (F=6.88, *P*=0.0109 for cognitive ability, F=17.54, *P*=0.0001 for affective ability and F=13.97, *P*=0.0004 for development ability), with students from eastern cultural background perceived higher improvement in their ability than their partners from western culture. Derived from western countries, case study competition is quite different from what students experienced during their traditional lecture environment in many eastern countries. In the eastern-oriented culture, learners have a propensity for rote learning. With high power distance, students' attitudes tend to be passive, which implies low motivation. Case-based competition is actually a different teaching method that encourages students to learn independently, work in the group, and augment their motivation. In this case, students from eastern cultural generally perceive higher benefits than the other group. In addition, the extent to which students of different cultures vary in their reactions to uncertainty also influences students' learning satisfaction (Hofstede, 2011). Students who are able to avoid uncertainty (eastern culture) tend to feel more comfortable in a constructive learning context. Still, case study competition provides an open-minded learning process that traditional teaching scenarios fail to afford. This learning experience adds the value that students may perceive.

Further, a significant main effect of discipline was only found in improving students' development ability (F=3.67, *P*=0.0599). Students from agricultural field (M=4.048, SD=0.432) perceive lower benefits from development skills than students from non-agricultural field. The IFAMA case study competition was targeted at the agribusiness sector, thus this experience was expected to inspire students' motivation and enhance their understanding of the concepts and knowledge learned. In this case, the results generated here was a myth, as students with agriculture-related background were supposed to have a higher evaluation towards their cognitive and affective abilities improvement. A possible explanation is that this competition is a combination of agriculture and management. Students with different backgrounds can benefit from either aspect, so there was no significant difference in the perceived improvement in cognitive ability and affective ability.

In last, no significant effect was observed in training (F=1.41, *P*=0.2389 for cognitive ability, F=1.90, *P*=0.2998 for affective ability and F=1.09, *P*=0.2998 for development ability), which means getting trained before the competition makes no difference for participants' evaluation towards case study competition. This was contrary to our expectations, although 83.08% of the respondents had been trained before they

Table 6. Mean value and standard deviation broken down by each factor for the research.

Dimension	Content	Cognitive ability	ANOVA test	Affective ability	ANOVA test	Development ability	ANOVA test
Culture	Western	3.889 (0.421)	6.88	3.818 (0.488)	17.54	3.965 (0.368)	13.97
	Eastern	4.186 (0.484)	(0.0109)	4.306 (0.441)	(0.0001)	4.331 (0.410)	(0.0004)
Discipline	Non-agriculture	4.098 (0.491)	1.52	4.108 (0.592)	0.90	4.251 (0.404)	3.67
	Agriculture	3.975 (0.457)	(0.2225)	4.007 (0.459)	(0.3461)	4.048 (0.432)	(0.0599)
Training	Without training	4.098 (0.491)	1.41	3.963 (0.562)	1.90	4.073 (0.438)	1.09
	With training	3.975 (0.457)	(0.2389)	4.072 (0.520)	(0.2998)	4.158 (0.429)	(0.2998)

took part in the case study competition. A possible explanation may lie in the content of the training itself. Although case study competition is designed to enrich students' access to the real business world and trained them to secure future career, the training organized by each university is usually aimed at helping students to improve their performance in the competition. As far as the form and method of training are concerned, the most widely used process was case simulation, while training content mainly consists of only lectures concerning related theories. Mentors are accountable for material delivery in a lecture learning environment so students play a passive role and are not motivated to learn. Usually, mentors prefer to teach students related to theory, provide them with agribusiness background knowledge, and give them critical thinking techniques. Thus, participants' abilities are not intended to be trained during this competition. Additionally, endogeneity problems may also occur during this process. As those who are chosen to take part in the competition generally have advantages of having these abilities than others, in this scenario, the marginal effect of training on them can be limited.

3.6 Results of case competition training

For those who had the training experience, the average duration was nearly 11 weeks, and 85.71% participated in the training regularly. In terms of participation frequency, the highest reported record was once a week followed by more than once a week, which respectively accounts 68.75% and 27.08% of the total respondents with regular training experience. This result showed that mentors and students tended to make the corresponding training more frequent to achieve a good performance in the competition as much as possible. In practice, most training teams consisted of 1 person or 2 people, each representing 33.85%. Mentors were usually teachers of the universities having experience of this competition before. Few of the mentors were from the industry or having industrial working experience.

For qualitative analysis, two open-ended questions such as ideal advisors for the training and ideal professional background of the advisors were asked. The main aim of this qualitative analysis is to highlight students' views regarding mentors eligibility before conducting training. Table 7 shows the detailed information referring to the type of advisors, most of the respondents (n=38) preferred mentors with the following three traits: having past experiencing in this case competition, being familiar with the agribusiness industry and possessing related academic background. As for the academic background, no specific major was seen other than management and agricultural economics. Related educational backgrounds such as finance, supply chain management, marketing, or strategy management was also welcomed. Approximately 90.74% of the students showed a positive attitude towards the effects of training in case of competition (very helpful and slightly helpful).

4. Discussion

This study aimed to explore the perception of students towards case study competition in the case of agribusiness competition. The study further provided insight to depict how different cultures, participants' discipline, and training experience affect students' perception. The study resulted in the following conclusions.

Table 7. Thematic analysis of reported responses to two open-ended questions ('What is your ideal advisors for the training' and 'What is the ideal professional background of the training team or advisors?').

Response theme and sub-categories		Numbers of responses
Type of supervisor	With case competition experience	22
	With academic background	27
	With related industry working experience	13
Professional background of supervisor	Agribusiness	5
	Agricultural economics	16
	Accounting	3
	Finance	11
	Supply chain management	3
	Operation management	1
	Strategy management	4
	Management	17
	Marketing	5
	Agriculture science	4
	Food science	3
	International trade	2
	Investment	1

The current study observed that the participants had shown positive responses towards all dimensions of skills improvement, namely cognitive ability, affective ability, and development ability. The findings correspond well with the previous research indicating that the case methods in higher education and skills development are effective (Beckisheva *et al.*, 2015; Martínez-Cañas *et al.*, 2012; Roy and Banerjee, 2012). The findings also confirm that the respondents undoubtedly ascertained and narrated the positive outcomes related to the three aspects of learning and skills development under consideration (Ozdilek, 2014). The detailed analysis across different items within each dimension showed that higher positive scores were recorded to use related knowledge. This corroborates the findings of Yadav *et al.* (2010). The participants also acknowledged that the agribusiness case study competition enabled them to be better involved in the learning process, build confidence and enhance performance in seminar discussion. It has been elaborated from the previous literature that respondents perceive case studies as a viable tool to boost conceptual thinking (Camill, 2006; Chaplin, 2009; Harrison, 2012; Healy and Mccutcheon, 2010; Yadav *et al.*, 2010), the conceptualization of the problem and effort to solve the problem from multiple perspectives (Cameron *et al.*, 2012; Chaplin, 2009), which may motivate the student to actively participate in case study competitions. Benefits related to work under pressure, making presentation, and collaborating in group work were also found. The lower mean value for items like mathematical programming skills, financial analysis skills, simulation skills, data process skills, and written skills implied that participants recognize these aspects as less advantageous than other benefits. The above benefits were inherent and implicit in the case study method. When students solve a case for a competition where winning may be the key motivator, they may not profoundly excavate these skills.

Moreover, mixed-ANOVA analysis has shown that cultural background, participants' discipline, and training experience influence students' perceived benefits. The outcome showed an interesting finding for cultural background and students' evaluation towards agribusiness case competition. Students from eastern cultural backgrounds generally perceived higher benefits in cognitive ability, affective ability and development ability. The findings revealed that discipline significantly improves students' development skills. At the same time, the training experience has shown no significant difference between students' evaluation in all dimensions. The qualitative findings unveiled that the majority of students preferred that the mentor of the training team should be a person having expertise of both theory as well as industry, and better to have experience of such competitions in the past. Mentors from the disciplines of agricultural economics, and management background were also appreciated by the students.

5. Conclusion and practical implications

The results of our study indicates that the agribusiness case study competition serves as a bridge to link academia with agribusiness industry and provide numerous opportunities to offer students to remain intact with the real business world. Students after having experience of agribusiness case competition improved their cognitive ability, affective ability, and development ability at the same time, which made this method a helpful learning as well as a teaching tool for students and educators. The current findings of this research may go some way towards helping students, educators, and case competition organizers in making improvements. Well-planned competitions with the right rationalized consequences that focus on learning benefits may lead to more remarkable achievement among the participants. Moreover, educators are also required to narrate the benefits of the case methods in both classrooms and beyond, which may help in motivating students to perform productively and meaningfully in competitive environments. This may upshot students' understanding to consider themselves as well-equipped in partaking in such competitions.

There are several implications of this study. Case study competition is good for students who want acquiring high-level cognitive skill to improve their overall academic performance, especially for eastern country students. It provides a different learning experience than their conventional methods. Once students with agriculture-related backgrounds understand the benefits of such challenges, they may voluntarily participate in such events beyond their classrooms and universities.

Educators, who strive to promote higher education, learning reform, and skills development, can promote this kind of competition as a teaching method in higher order learning. For students' better performance in the competition, more targeted skills required by the competition should be drilled during the training, and a reasonable mentor with a solid foundation of related field, past competition experience, and industry vision is highly recognized. Cultural differences should be considered when guiding students in case of training and competition. As discipline was related to participants' evaluation, more guidance of development abilities is supposed to be given to students with agriculture-related majors.

Organizers of such events should be mindful of multiple considerations when designing guidance. Commercial organizers may create the case in a more focused area or in a directional way to choose their potential employees. But for the organizers from higher education institutions, they should make the competition more diversified. The effectiveness of case study competition as a teaching tool partially depends on the level of expertise that develops these cases. As our research results show, participants' skills, such as programming skills, data process skills, written skills, and financial analytical skills, were not improved as much as other skills through this event. However, these skills are demanding in the real business world today and can add value to the entrepreneur's performance (Fairlie and Bahr, 2018). Thus, organizers can optimize the competition by taking these skills into the contents needed during case study analysis. Furthermore, orientation programs and workshop sessions can also be developed to make students more prepared.

6. Limitations

The study was exploratory research, and the findings in this study should be considered with limitations inherent in it. Due to the protection of personal information, we had limited access to the students who had the experience in this case competition. Besides, to include diversified culture and educational background in this study, the sample size was not very huge. In the future study, we would find more way to get more observations and try to expand the sample size. Secondly, our study was cross-sectional instead of a longitudinal one, thus we were unable to identify the exact effect of a case study competition. This may be further investigated by a pre-post design, where data is both collected before and after the case competition. The comparison between students who had and had not the competition experience should also be made to avoid sample self-selection problem. Students who had been chosen for case competition commonly had advantages in the mentioned skills over those who fail to participate. In this case, the benefits participants acquired through the competition would be underestimated. Thus, to achieve a more precise result, an

average treated effect can be evaluated through the difference in difference methods in future research. It is also worth noticing that the respondents in our survey were voluntary and their experience in the case study competition was not at the same time. This may result in a psychological bias when they report their perception. For example, those who attended this activity at an earlier time may have a more ambiguous feeling when recalling to what extent the case competition experience increased their abilities since they had a higher possibility of being interfered with by other experience in their latter study or work.

Supplementary material

Supplementary material can be found online at https://doi.org/10.22434/IFAMR2021.0141

Figure S1. Boxplot and scatterplot for the cognitive ability with culture/major/training group.
Figure S2. Boxplot and scatterplot for the affective ability with culture/major/training group.
Figure S3. Boxplot and scatterplot for the development ability with culture/major/training group.

Funding

This paper was supported by a project funded by the Priority Academic Program Development of Jiangsu Higher Education Institutions (PAPD), and Fundamental Educational Reform project funded by Nanjing Agricultural University (2017Z005).

Conflict of interest

The authors declare that they have no conflict of interest.

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