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Organizational assimilation in temporary organizations: An exploratory study in management education

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Abstract: This study examines how organizational assimilation processes influence individual and team performance within a management education setting. Building on prior evidence that teaching operations management fosters convergence in students' thinking and decision-making, we extend the inquiry by conceptualizing convergence as an assimilation process within a temporary organization—the classroom. Using a longitudinal survey design and non-parametric analysis of EMBA students' responses, we find that teaching leads to significant convergence in decision-making approaches and that such convergence positively affects team performance but not individual exam performance. These findings contribute to administrative sciences by extending organizational assimilation and shared cognition theories into educational environments, with practical implications for organizational learning, onboarding, and team-based learning systems.

Keywords: organizational assimilation; temporary organization; team performance; management education; convergence; shared cognition

1. Introduction

Is a management degree worthwhile? In essence, this question concerns the goal of management education. At a business school, the purpose of education should go beyond the simple transfer of knowledge from professors to students. It must enable the students to become capable of solving real-world problems and making decisions effectively. Dewey [1] postulated that education ought to encourage "reflective thinking," which Baron [2] defined as a type of thinking that considers options and reasons before choosing a course of action or adopting a belief. Baron [2] further proposed a general normative or prescriptive model of the phases of reflective thinking. Similarly, we put forth that the goal of management education should be to enable students to develop and enrich their way of thinking in managerial decision-making. This is an integral part of leadership [3]. A fundamental yet implicit assumption underlying this statement is that the professor should be able to influence the students' thinking and decision-making through teaching, i.e., *teaching should matter*. Rahmat et al. [4] suggested that the professor could shape the classroom dynamics to create value for student learning [5]. Similarly, Blazar and Kraft [6] claimed that teachers can choose activities that help students get positive learning experiences.

Extrapolating the research question, we pose a crucial social question, i.e., "Does education make a real difference?" Answering this question convincingly is vital, especially for developing nations, where decision-making to allocate scarce national resources to competing sectors should be one of the most challenging issues. Our study

can help developing countries prioritize investing in education for economic and social development.

Building on earlier work that demonstrated the convergence of students' thinking and decision-making through teaching operations management [7], this study explicitly extends that inquiry by framing convergence as an organizational assimilation process and examining its impact on team performance. Thus, while the prior study focused on the cognitive effects of teaching, the present research contributes broader organizational insights by framing the classroom as a temporary organization. Assimilation processes such as convergence in thinking and decision-making are central to how organizations learn and adapt [8]. By studying these processes in the classroom, we gain insights into foundational mechanisms of organizational learning in professional environments.

As one of the core disciplines in any business curriculum, operations management is about optimally managing resources, processes, and capabilities to create value [9]. While teaching operations management, we ask the same fundamental question, "*Does the classroom teaching create any real value for the students?*" It is equivalent to "*Does the classroom teaching matter?*" In a business school, it is usual that teaching and learning occur in organizational settings, e.g., classrooms and teams. Thus, such teaching and learning are organizational processes in which we presume organizational assimilation occurs.

In this paper, we present an exploratory study examining organizational assimilation and its effect on performance in a business course class, trying to answer two research questions: *whether organizational assimilation occurs* and *how such organizational assimilation affects performance in a business course class*. We carry out research in two phases. First, we hypothesize that organizational assimilation is embodied in the organization's members converging in thinking and decision-making [10]. That is, as organizational assimilation occurs, students taking a business course together converge with each other in terms of thinking and decision-making. Second, we hypothesize that such convergence enables the student to perform better in class, implying that organizational assimilation positively affects its members' performance. To prove the hypotheses, we analyzed survey and classroom performance data of the students in an EMBA class.

We structure the paper as follows. In Section 2, we review references closely related to the key propositions in the paper. Then, we develop the research framework that lays out research hypotheses. In the next section, we present the survey results, discuss how to derive the data that should be analyzed to test our ideas, and summarize the results of hypothesis testing. Finally, in the last section, we discuss conclusions and their managerial implications.

2. Literature review

What is the raison d'être of a business school? It is a question about the goal of business education. As Baron [2] proposed, education should make students capable of reflective thinking to recognize, evaluate, and solve real-world problems. As teachers, professors play a critical role in accomplishing this educational objective [6]. By designing course structures, coordinating classroom activities, and evaluating

students' individual and team-based performance, the professor can guide and influence the entire process through which the students acquire knowledge and form common mental models with their classmates [11]. In effect, the professor plays the role of a conductor in an orchestra. These teachings and learnings in the class constitute organizational assimilation or socialization processes [12].

As a vital part of any business curriculum, operations management is the study of maximizing value for society by effectively producing products and services through managing a firm's resources, processes, and capabilities [9]. The most fundamental question in teaching operations management is concerned with the goal, i.e., why we teach students operations management. Some argued that students become more capable or effective by learning operations management. For instance, they suggested that education helps students become capable of getting insights and solving real-world problems, emphasizing more practical aspects of education. Similarly, Balwant [13] put forth that we can teach business students to acquire flexible leadership by using an experiential classroom learning exercise. Aguirre et al. [14] demonstrated whether and how to teach ethics to business students, while Anwar et al. [15] showed how to shape students' entrepreneurial intention through education.

Even for technical or analytical methodologies such as operations research, Connell et al. [16] stressed the importance of the tacit knowledge that should be embedded within an organization. It implies that valuable knowledge should be associated with the decision maker's capability, which is more than just a mechanical sum of technical or analytical know-how. Using optimization modeling, Williams et al. [17] tried to teach the students how to gain insights into preparing for potential business disruptions. Experimenting with an experiential learning approach, Jones et al. [18] highlighted enabling the students to practice what they learn in the classroom to solve problems in a real-world organizational environment and thus the organizations to enhance their performance as meaningful goals of teaching operations management [19]. Similarly, Babier et al. [20] designed a course in which undergraduate students form teams to suggest and implement an analytics project to solve a real-world problem. Adopting the case-based teaching of operations management, Drake [21] also stressed it for the students to make decisions in real-world settings effectively.

On the contrary, others are focused on a more profound level linked with changing the students' perceptions or ways of thinking. Carlos-Arroyo et al. [22] postulated that complex thinking is a transversal competency essential to professional training in business. Suggesting 'teaching the fundamentals of the innovation process' as an increasingly imperative goal of business and engineering education, Seidel et al. [23] emphasized a user-centered design-thinking methodology as a valuable tool to teach the innovation process. In designing an innovative course on supply chain management, Natarajarathinam et al. [24] postulated an educational goal to help students develop critical thinking, problem-solving, reflection skills, and technical competencies. Consistent with Natarajarathinam et al. [24], Elsawah et al. [25] also examined whether using a set of systems thinking concepts and methods can effectively promote systems thinking among students in a higher-education setting. In essence, Elsawah et al. [25] tested whether classroom teaching can help students to develop a particular way of thinking, i.e., perspective. They utilized data gathered

through action experiments in authentic educational settings [26], which did not involve controlled conditions. It seemed appropriate because Elsawah et al. [25] investigated the impacts of teaching systems thinking in an educational setting. They gave the students two assignments, whose results were compared to gauge whether they gained competency in specific systems thinking skills.

In essence, the goal of teaching operations management should be to enable the students to develop their own capability of thinking and decision-making to solve managerial problems effectively. In fact, it is not just for teaching operations management but for teaching business in general. Then, we must ask *how the students can develop their capability of thinking and decision-making through teaching and learning in class*, i.e., we should identify the process through which teaching could help the students to develop such capability.

Teaching and learning occur in an organizational setting, i.e., among students in class. In turn, students taking the same course together form a cohort organization. Thus, like in any other organization, the students in the cohort class experience organizational assimilation or socialization, i.e., they interact with each other and engage in learning activities together [12,27]. A unique feature is that there is a professor who directs the goal of the class by defining course objectives and contents clearly, oversees the students' communications, and coordinates their activities throughout these organizational interactions [6,28].

As members of the same team or organization, sharing the experience of working together, the students develop similar mental models that enhance similar ways of thinking and behaviors through the assimilation or socialization process [29–31]. Class discussions play a pivotal role in assimilating or socializing students in the class and also in teams [4]. In fact, learning itself is a result of social interaction in the classroom.

Beyond traditional perspectives on management education, organizational assimilation has long been recognized as a critical process shaping how individuals integrate into collective environments [12,27]. In administrative sciences, this process is comparable to developing shared mental models [32] and organizational learning [8]. Assimilation in organizational settings fosters a convergence of cognitive frameworks, facilitating coordination, communication, and performance [33]. In this extended study, we view the classroom as a temporary organization and extend the assimilation theory to educational contexts, proposing that teaching and peer interaction drive not only individual knowledge acquisition but also the formation of collective cognitive structures that mirror organizational socialization dynamics.

3. Research framework and design

What is the overarching goal of business education? It should be to enhance the student's capability of making managerial decisions and solving real-world problems effectively. In order to prove whether we accomplish this goal in business schools, i.e., whether business teaching and learning help students be more competent in managerial decision-making and problem-solving, we conduct research in two phases. First, we hypothesize and prove that teaching and learning operations management make students' thinking and decision-making converge with each other significantly. Second, we show that such convergence helps the students perform better in class,

indirectly proving that business teaching and learning enable the students, i.e., future managers, to become more competent in real-world management.

Figure 1 depicts the research framework. It indicates that integrated teaching and learning affect students' organizational convergence (in thinking and decision-making) and also individual knowledge acquisition (largely through lectures). In turn, organizational convergence facilitates both team and individual learning. Similarly, individual knowledge enriches both team and individual learning. Finally, we premise that the learning in the class can enhance the student's capability of real-world managerial problem-solving.

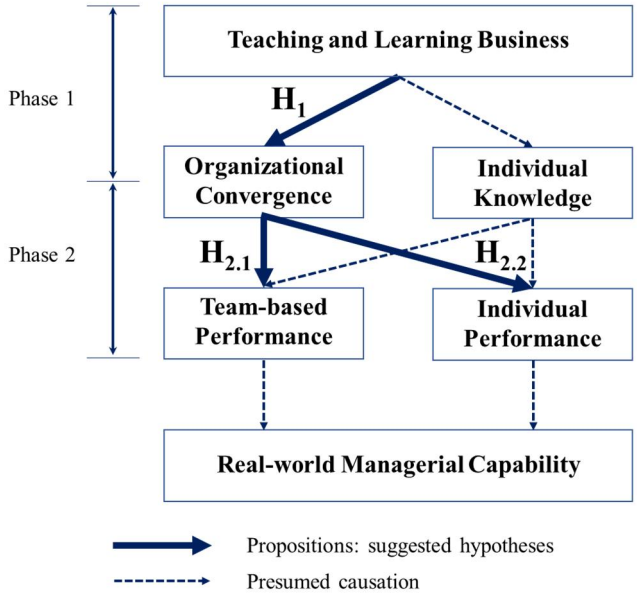

Figure 1. Research framework.

3.1. Preliminary description of survey structure and measurement

To test the hypotheses, we collected data using a survey questionnaire with twenty multiple-choice questions, each with five choices. Each question presents a managerial or economic situation based on real-world cases and then asks each student to choose an appropriate answer that describes the situation properly, diagnoses the managerial problem acceptably, or enables the decision-maker to solve the problem effectively. For each question, there are five choices. But there is no right or wrong answer. Each question is designed such that it does not require any specific knowledge or experience in management. Rather, the answer selected by the student reflects her perspective or propensity in thinking, i.e., how to think in approaching managerial problem-solving.

The survey instrument and initial convergence measurement approach were based on prior work [7], demonstrating the effect of teaching operations management on students' thinking and decision-making. In the present study, we extend this approach by linking convergence to performance outcomes and reframing the classroom as a temporary organization.

One of the key constructs in this study is 'convergence' in thinking and decision-making. To operationalize it, we define a mode answer for a question as an answer (choice) chosen by the students most repeatedly for that question. Now, we measure a

student's level of 'convergence' with the number of mode answers that the student has chosen in the survey. This process is to be more formally defined in a later section.

3.2. Hypothesis in phase 1—Convergence in thinking and decision-making

The research question in phase 1 is, "*Do teaching and learning significantly affect the student's way of thinking and decision-making in operations management?*" More specifically, we want to test whether classroom teaching and learning make the students in the same course develop similar perspectives or ways of thinking in operations management, i.e., there is a convergence in terms of the students' thinking and decision-making.

A theoretical foundation for explaining such convergence is the theory of organizational assimilation or socialization, which is the process by which individuals become integrated into the culture of organizations [27]. During organizational assimilation, students interact with each other and engage in learning activities together [12] and thus develop similar mental models, which promote similar ways of thinking and behaviors [31]. In fact, class discussions facilitate assimilating or socializing students [4].

In this paper, we hypothesize that the more assimilated the students in the class, the more converged their thinking and decision-making, i.e., the stronger the students' common mental model. Further, we expect that the more converged the students' thinking and decision-making, the larger the difference in the number of mode answers before and after taking the course together. As such, the null hypothesis is that there is no difference in the number of mode answers between before and after taking the course.

Hypothesis 1. Teaching and learning by students who take the operations management course together for a semester make the students' thinking and decision-making converge with each other's.

Hypothesis 1 implies that while taking a course together, the students' thinking and decision-making have become more converged with others in the class. To understand the logic underlying this hypothesis, we need to start by asking what it means to converge in thinking and decision-making. We have already suggested that an integrated course is designed to use team-based action learning as well as lecture-based, more traditional learning methods. Thus, when students take an integrated course together, they form teams and actively participate in group activities such as discussions, debates, brainstorming, and projects involving real-world problem-solving. While they extensively work together in team activities, the students try to reach a consensus to accomplish their common goal. Although the team members initially might have diverse or different perspectives regarding various issues in management, they gradually find commonality among themselves through team activities. In fact, as a team, all the team members are responsible for producing outcomes such as team reports in a consistent way, i.e., at least the majority of the team members or all the team members if the team size is relatively small, like 3 or 5, should agree with each other regarding the reports. This process of team building or

assimilation affects each team member's way of thinking and decision-making in a direction conducive to building consensus among the team members.

3.3. Hypotheses in phase 2—Convergence and class performance

In phase 2, we investigate whether the convergence in thinking and decision-making has a significant effect on the student's performance in the class. In order for a team to perform well as one entity, it is essential for the team members to develop unity: this is the process of convergence, i.e., organizational assimilation. Stout et al. [11] studied the relationship between the team members' shared mental model and their team performance and concluded that the shared mental model enables the team members to communicate effectively. Effective communication among team members, in turn, helps the team prepare better planning, which leads to higher performance. That is, the more converged the team members are in terms of their thinking and decision-making, the better the team's performance.

Similarly, from an individual member's perspective, to make a significant contribution to improving the team's performance, it seems crucial to facilitate the organizational assimilation process, through which the member forms a shared mental model with other team members and develops a similar propensity for thinking and decision-making. Therefore, we put forth that as an individual team member tries harder to assimilate herself into the team's shared mental model, she can make a bigger contribution to improving her team's performance. While actively experiencing and learning for her team's performance, in turn, she enhances her individual capability, improving her own academic performance in the class [34].

The operations management course in this study was designed as an integrated one consisting of team activities and individual knowledge acquisition (**Table 1**). As such, we want to look at the relationship between the level of convergence and performance by separating the student's performance in her own individual knowledge acquisition, i.e., individual evaluation, from her performance as a member of her team in the class, i.e., team evaluation.

Table 1. Course design.

Evaluation criteria				
	Weight	**Category**	**Elements**	**Brief explanation**
Final grade	50%	Team-based evaluation	Term project Case analysis Business game Participation	• A team consists of 4–5 students • Action learning • Experiential learning • Team-centered activities
	50%	Individual evaluation	Exam	• A conventional written exam in the last class • Short and full essay, analysis questions

Notes: 1) Course: Operations Management, a core course for the EMBA program; 2) The class meets for 3 hours every Saturday for 16 weeks; 3) Number of students enrolled in the class: 33; 4) Number of students in the study: 29 (four were absent during either of the two surveys).

Hypothesis 2. Such convergence (as in Hypothesis 1) enables the students to perform better in the class.

Hypothesis 2.1. A student with more robust convergence performs better in her team evaluation. That is, the larger the Δ_i, the higher the student *i*'s *team performance*.

Hypothesis 2.2. A student with more robust convergence performs better in her individual evaluation. That is, the larger the Δ_i, the higher the student *i*'s *individual performance*,

$$\text{where } \Delta_i = \frac{\#\ of\ student\ i's\ mode\ answers\ in\ week\ 16}{\#\ of\ student\ i's\ mode\ answers\ in\ week\ 1}.$$

We have already suggested that the more converged the team members are in terms of their thinking and decision-making, the better the team's performance as one entity. From this reasoning, we can infer that if a student tries hard to understand her team members and is actively involved in team activities, she is more likely to develop her thinking and decision-making consistently with her team members. Thus, a higher level of convergence indicates that the student has worked very hard for her team to perform well in the class. When a student works hard, e.g., studies diligently, whether it is for her team or herself, it is reasonable to expect her to perform well in the class as well.

Hypothesis 2 implies that as a student's thinking and decision-making become more converged with other students in the class, the student's performance in the class improves.

3.4. Course design and sample

The professor designed the course as an integrated one comprising two pedagogical methodologies, i.e., *individual* and *team-based*. The main pedagogical method for individual learning is lecture, while for team-based learning, methods such as case analysis, case presentation, business games, and term projects are utilized. More information about the course is in **Table 1**.

At the end of the semester, the professor graded each student so that her final grade consisted of two areas: *team-based* and *individual* activities. For the team-based grade, the student was evaluated based on her team's performance in terms of case analysis and term project, in addition to the role she played as a team member to improve her team's performance, e.g., case presentation and participation during case discussion. On the other hand, for the individual grade, the student was evaluated based on her own scores in the final exam, an in-class written exam, which tested her knowledge of the subjects covered in the professor's lectures.

Although the number of students in the class was 33, we collected data from 29 students who took the surveys *both* at the beginning *and* at the end of the course. Since they were actual students in an EMBA program, the subjects' attributes could not be controlled [25]. For instance, their educational and career backgrounds varied widely.

3.5. Survey structure and administration

The survey was administered as follows (**Table 2**). On the first day of the course, the students took the survey, which consisted of 20 questions about operations management. The survey was designed such that each question does not require the student to possess any previous knowledge or experience in operations management. Each question measures the student's perspective rather than specialized knowledge

about management. The students took the same survey on the last day of the course. We premised that by comparing the students' answers on the first and the last day of the course, we could test the hypothesis that classroom teaching and learning make the students converge in terms of their way of thinking in operations management. After taking the same course in the same classroom, the 'classmate' managers, i.e., students, became more similar in terms of their thinking and decision-making regarding operations management, i.e., their views converged. It implies that classroom education does have a significant impact on the way managers think and make decisions on operations.

Table 2. Survey timeline, rules, and questions.

Timeline
• The 1st survey was on the first day of the course. • There were 14-week lectures and a 2-week break between the first and last classes. • The 2nd survey was on the last day of the course.
Rules
The same questionnaire was used for the first and the second survey. There was no mention of or reference to the survey questions for 16 weeks between the first and the second survey. Therefore, it was improbable that when students took the second survey, they could recall any questions from the first survey. That is, there was no learning effect between the two surveys.
Sample survey questions
Sample Question 1
At first glance, this mess is a series of intricately intertwined product shortages. China's lack of shipping containers has forced other countries that rely on Chinese components and chemicals to limit production. The situation at the port shows a more complex and subtly intertwined set of problems. This is more than just a product shortage issue. Barriers that are seldom fixed and constantly move around leave products stacked in the wrong place, away from where they should be. A shortage of finished products in retail stores means containers are loaded onto numerous ships docked at sea or clustered on riverbanks. The sheer accumulation of warehouse goods indicates a need for more truck drivers to transport them to their next destination. *What is the core/essence of this paragraph? Choose the most appropriate answer among the following five choices.* (1) Supply chain disruption. (2) Shortage of finished goods at retailers. (3) Pileup of goods in warehouses. (4) Economic growth after the pandemic. (5) Factories' limited production.
Sample Question 2
Increasing market volatility has increased the need for agility and flexibility, and growing concern about the environmental impact of supply chains has prompted the localization and optimization of supply chains. Increasingly longer and more interconnected physical streams reflect the growing complexity of product portfolios. AI-based supply chain management solutions are a powerful weapon in addressing these challenges. Analyzing a significant amount of data and supporting managerial decision-making, AI has great potential to impact businesses significantly. However, the solution must also fit well with the organizational strategy. This alignment allows companies to address key decision-making challenges with the appropriate level of insight while avoiding unnecessary complexity. *What is the core/essence of this paragraph? Choose the most appropriate answer among the following five choices.* (1) AI has the potential to become a game changer for supply chain management. (2) As the company's product portfolios become more complex, so does its supply chain. (3) AI-based solutions should be well aligned with the company's organizational strategy. (4) Companies can make effective decisions by analyzing huge volumes of data. (5) As market volatility increases, the supply chain must be more agile and flexible.

4. Analysis

After administering the survey and collecting data from 29 students who took the operations management course together, we analyzed them systematically.

4.1. Survey result

The survey data were organized, and key measures or variables were derived as follows. **Table 3** shows how the survey's raw data at the opening of the course is organized and analyzed. There are 29 students in rows and 20 questions in columns. c_{ij} is the answer 1, 2, …, or 5, selected by student i for survey question j. For each question j, there is a mode answer m_{bj}, which is the answer (i.e., the choice) the students most repeatedly chose for question j in the beginning survey. Then, x_i is the number of mode answers among the answers selected by student i. We take the same steps for the raw survey data collected from the second survey at the end of the course.

Table 3. Definition of a mode answer.

		Question *j*						
		1	**2**	**3**	**…*j*…**	**19**	**20**	$\boldsymbol{x_i = \sum_j K_{ij}}$
	1	c_{11}	c_{12}	c_{13}	c_{1j}	$c_{1,19}$	$c_{1,20}$	x_1
	2	c_{21}	c_{22}	c_{23}	c_{2j}	$c_{2,19}$	$c_{2,20}$	x_2
	3	c_{31}	c_{32}	c_{33}	c_{3j}	$c_{3,19}$	$c_{3,20}$	x_3
Student *i*	…							
	i	c_{i1}	c_{i2}	c_{i3}	c_{ij}	c_{i19}	c_{i20}	x_i
	…							
	29	$c_{29,1}$	$c_{29,2}$	$c_{29,3}$	c_{29j}	$c_{29,19}$	$c_{29,20}$	x_{29}
	Mode answer	m_{b1}	m_{b2}	m_{b3}	m_{bj}	m_{b19}	m_{b20}	

Notes: $c_{ij} = 1,2,3,4,$ or 5;
m_{bj}: mode answer, which is the answer (choice) chosen by the students most repeatedly for question j in the beginning survey;
$K_{ij} = \begin{cases} 1 & if(c_{ij} = m_{bj}) \\ 0 & \text{otherwise} \end{cases}$;
x_i: the number of mode answers among the answers chosen by the student i.

Following the steps above, we can calculate the number of mode answers selected by the students in the course for each set of questions. **Table 4** shows the variables representing actual survey data.

Table 4. Variables and descriptive statistics.

Descriptive Statistics												
	N	Range	Min	Max	Mean		Std. Dev.	Variance	Skewness		Kurtosis	
	Statistic	Stat	Stat	Stat	Stat	Std. Error	Stat	Stat	Stat	Std. Error	Stat	Std. Error
W16–W1	29	14	−6	8	1.17	0.539	2.904	8.433	0.042	0.434	0.911	0.845
Valid N (listwise)	29											

Notes: (1) W1: # of mode answers selected by each student for the survey in the first week (week 1); (2) W16: # of mode answers selected by each student for the survey in the last week (week 16). Note that data is considered to be normal if skewness is between −2 and +2 and kurtosis is between −7 and +7 [35].

4.2. Hypothesis testing

Considering that the sample size of 29 is relatively small, we need to apply non-parametric analysis methods. More specifically, we utilize the Wilcoxon Signed-Rank and Mann-Whitney U tests [36].

4.2.1. Phase 1

To test Hypothesis 1, we define the null and test hypotheses as follows:

- H_0: There is no difference in the number of mode answers selected by the student between before and after the cohort classroom learning.
- H_1: The number of mode answers selected by the student after the cohort classroom learning is significantly larger than that before the cohort classroom learning.

Table 5 shows the hypothesis test results based on the Wilcoxon Signed-Rank method. It proves that the hypothesis is accepted at a 95% significance level, i.e., the null hypothesis is rejected at a 95% confidence level. Recall that Hypothesis 1 suggested that the number of 'mode answers' selected by each student should increase significantly after taking the course. By proving Hypothesis 1, we can firmly claim that teaching operations management significantly impacts the student's way of thinking in operations management, i.e., such teaching engenders convergence of perspective or way of thinking among the students. Organizational assimilation occurs and is reflected in the convergence of thinking and decision-making.

Table 5. Hypothesis testing result: H_0 before = after; H_1 before < after.

Test Statistics [a]	
	W16–W1
Z	−2.187[b]
Asymptotic Sig. (1-tailed)	0.0145

Notes: [a] Wilcoxon Signed Ranks Test; [b] Based on negative ranks.

4.2.2. Phase 2

To test Hypothesis 2, we need to group the students into two as follows:

1) Group 1—those students who have not increased their level of convergence, i.e., low converged students with $\Delta_i \leq 1.0$; there are 11 students in Group 1.
2) Group 2—those students who have increased their level of convergence, i.e., high converged students with $\Delta_i > 1.0$; there are 18 students in Group 2.

$$\text{where } \Delta_i = \frac{\#\ of\ student\ i's\ mode\ answers\ in\ week\ 16}{\#\ of\ student\ i's\ mode\ answers\ in\ week\ 1}.$$

Table 6 shows the descriptive statistics for the team-based and individual grades of the students in each group, i.e., Group 1 (low-converged students) and Group 2 (high-converged students).

To test Hypothesis 2, we define the null and test hypotheses as follows:

- H_0: There is no difference in performance (individual scores or team-based scores in the course) between 'low converged' and 'high converged' students.
- H_1: The (individual or team-based) performance of a 'high converged' student is better than that of a 'low converged' student.

Table 6. Descriptive statistics of grades (team-based *versus* individual).

(1) Total students

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Standard Deviation Statistic	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
Team	29	14.4600	32.1000	46.5600	39.1462	3.7621	−0.144	0.434	−0.843	0.845
Individual	29	37.0	11.5	48.5	35.034	9.1211	−0.894	0.434	0.705	0.845
Valid N	29									

(2) Group 1: low converged students ($\Delta_i \leq 1.0$)

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Standard Deviation Statistic	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
Team	11	14.4600	32.1000	46.5600	37.7145	4.3704	0.759	0.661	0.078	1.279
Individual	11	36.5	11.5	48.0	33.955	9.5458	−1.233	0.661	2.652	1.279
Valid N	11									

(3) Group 2: high converged students ($\Delta_i > 1.0$)

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Standard Deviation Statistic	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
Team	18	10.6600	34.4000	45.0600	40.0211	3.1527	−0.677	0.536	−0.379	1.038
Individual	18	33.5	15.0	48.5	35.694	9.0670	−0.775	0.536	0.114	1.038
Valid N	18									

Table 7 presents the result of the Mann-Whitney U Test, which indicates that Hypothesis 2.1 is strongly supported, i.e., the team-based performance of a 'high converged' student is significantly better than that of a 'low converged' student. **Figure 2** graphically shows the result.

Table 7. Difference of team-based performance between low and high converged students.

Independent-Samples Mann-Whitney U Test Summary	
Total N	29
Mann-Whitney U	140.500
Wilcoxon W	311.500
Test Statistic	140.500
Standard Error	22.243
Standardized Test Statistic	1.866
Asymptotic Sig. (1-sided test)	0.031
Exact Sig. (1-sided test)	0.030

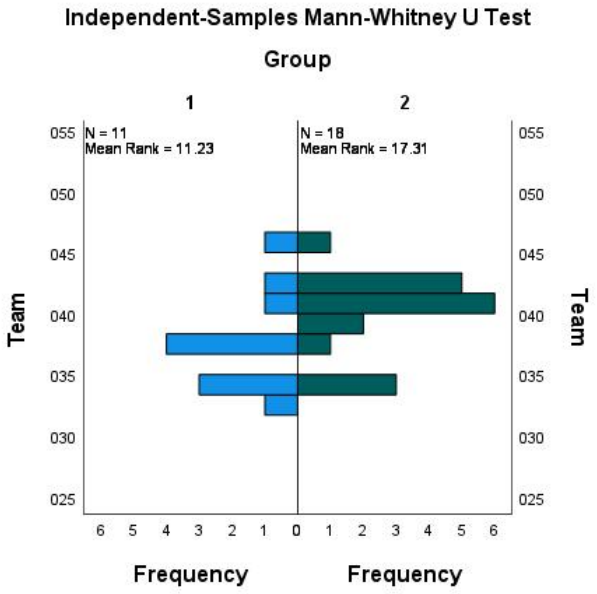

Figure 2. Difference of team-based performance between low and high converged students.

On the contrary, **Table 8** shows the result, which does not reject the null hypothesis regarding the students' individual performance. That is, we might not say that the individual performance of a 'high converged' student is better than that of a 'low converged' student. Therefore, we cannot accept Hypothesis 2.2. Again, **Figure 3** graphically shows the conclusion.

Table 8. Difference of individual performance between low and high converged students.

Independent-Samples Mann-Whitney U Test Summary	
Total N	29
Mann-Whitney U	110.500
Wilcoxon W	281.500
Test Statistic	110.500
Standard Error	22.229
Standardized Test Statistic	0.517
Asymptotic Sig. (1-sided test)	0.303
Exact Sig. (1-sided test)	0.306

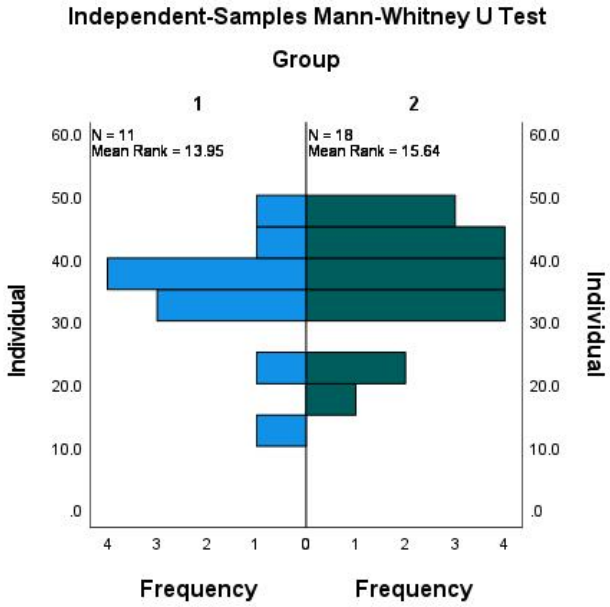

Figure 3. Difference of individual performance between low and high converged students.

The result of the analysis shows that all but one hypothesis is accepted (**Figure 4**). Thus, discussing the result related to Hypothesis 2.2, the only hypothesis rejected, in greater detail seems necessary. In the original framework (**Figure 1**), we proposed that organizational convergence in thinking and decision-making facilitates both team and individual learning, implying that the higher the convergence, the better the student's individual performance (Hypothesis 2.2). However, the analysis result confirms only Hypothesis 2.1 (the higher the convergence, the better the student's team-based performance), but not Hypothesis 2.2.

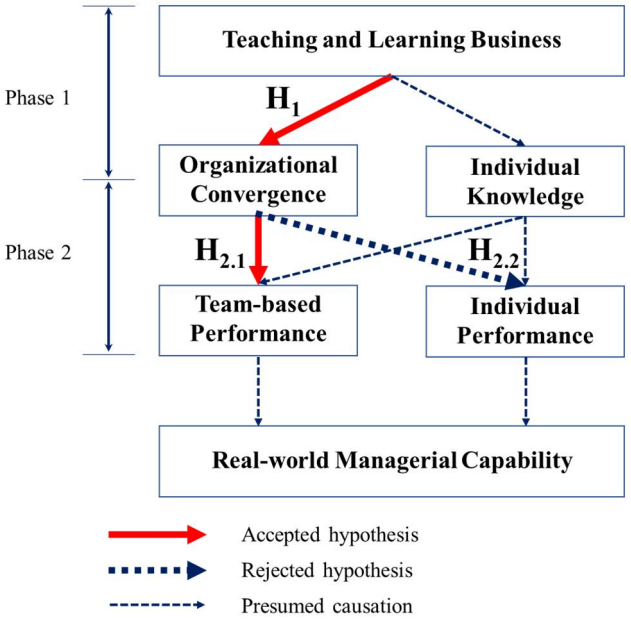

Figure 4. Hypothesis testing result.

To understand the result fully, we think it is important to see how the individual grade was measured. In section 3.4, we described how to determine the individual grade, i.e., "*On the other hand, for her individual grade, the student was evaluated based on her own scores in the final exam, an in-class written exam, which tested her knowledge about the subjects she learned through the lectures delivered by the professor*." Exactly according to the way that the individual performance was measured, it is clear that there might be little connection between individual grade and team-based activities, which constitute the fundamental basis for the organizational assimilation process, i.e., organizational convergence in thinking and decision-making.

5. Conclusion and discussion

The findings in this study offer valuable insights into administrative sciences by highlighting how organizational assimilation processes can be deliberately cultivated within educational environments. Specifically, the positive relationship between convergence in decision-making and team performance aligns with theories of shared cognition and organizational socialization [32,37]. These results suggest that individual assimilation of mental models can enhance collective outcomes even in temporary organizations such as classrooms [32]. Moreover, the finding that convergence does not significantly improve individual performance raises essential considerations about balancing assimilation with independent critical thinking—an issue equally relevant to real-world organizational training and onboarding programs.

This research is exploratory to answer the question, "Does teaching make a difference?" It is one of the most fundamental questions in education. As business school professors, we all face the same question, i.e., "Does teaching business make a difference for managers?" We started with a more focused scope, i.e., in the context of teaching operations management. The research question was, "Does teaching operations management make a significant difference for managers in operations management?" To answer the question, we must first prove that teaching operations management significantly impacts the student's way of thinking and decision-making in operations [38]. Note that teaching in this study is more comprehensive than a traditional lecture-oriented approach, involving the students' experiential learning as a whole [39–41]. Only after demonstrating that teaching can make a considerable impact can we further try to prove that such an impact is effective, i.e., achieving educational goals. Since we cannot measure the students' actual performance in the real world, we looked into the students' performance in the class.

To prove the propositions, we adopted a survey methodology. The sample was from an actual classroom setting, i.e., we surveyed EMBA students at a business school, who were primarily senior-level managers with at least ten years of job experience. As the sample size was small, we applied nonparametric analysis tools, i.e., the Wilcoxon Signed-Rank and Mann-Whitney U tests, to analyze the survey data. The analysis proved two of the three hypotheses we put forth.

Hypothesis 1 was fully accepted, i.e., teaching operations management significantly impacted the students' way of thinking and decision-making in operations management. We supported the hypotheses by showing that the students

significantly converged in their answers to the survey questions. For the hypothesis that links the student's convergence with her class performance, we proved it partially, i.e., the higher the student's convergence, the better her 'team-based' performance (Hypothesis 2.1), but not her 'individual' performance (Hypothesis 2.2). As we have already discussed, there might be a slightly more complex relationship between individual knowledge acquisition and convergence [42].

We summarize the analysis results in **Figure 4**. Although we believe that integrated teaching and learning can influence both convergence in thinking and decision-making at the organizational level and knowledge acquisition at the individual level, the current design of the study makes it difficult to observe or quantify how much each student has acquired knowledge individually. Therefore, the current scope of the study comprises the left-hand side, i.e., the integrated teaching and learning enhance the student's convergence in thinking and decision-making, and in turn the convergence has a positive effect on the student's team-based performance [43], but not on her individual learning performance. Nevertheless, we cannot conclude that there is no relationship between individual knowledge and team-based or individual performance. It could imply that in the current study, we do not have enough evidence to show the causality, probably due to not measuring how much knowledge each student has acquired during the class.

This study makes a few significant contributions to the literature. First, we empirically proved that teaching operations management could impact students' thinking and decision-making. In addition, we identified the link between a student's convergence and her team-based performance in the class, i.e., the stronger the convergence, the better the team-based performance. We extrapolate this result to the student's managerial capability, i.e., the stronger the convergence, the more capable the student is of real-world managerial problem-solving, assuming that the professor teaches the students effectively [44]. These are nontrivial implications.

On a more practical side, we hope that the research results strongly support the significance of education so that policymakers in developing countries should invest in education intensively as one of the top priorities for their social and economic advancement.

There is a key managerial implication. Managers can improve team effectiveness by fostering environments where shared mental models are developed. Training programs, onboarding sessions, and leadership workshops should emphasize not only technical skills but also alignment in thinking, terminology, and decision frameworks. Encouraging structured group reflection or scenario-based exercises can promote convergence and better team coordination. There is also a caveat. While alignment in decision-making improves group outcomes, overemphasis may suppress individual creativity and adaptability. As such, management education and corporate training should balance encouraging standardized practices and nurturing independent, critical thinking. This balance is vital for preparing managers to both integrate well within teams and solve novel problems autonomously.

As with any exploratory study, however, a few areas need more refinement and extension. For this kind of survey research, it is essential to develop the right questions that can measure what the study is supposed to measure. In this regard, we believe the questions were appropriately designed to measure how the student's way of thinking

changes. The questions were not developed to measure the student's exact level of knowledge or experience. Nevertheless, other researchers might want to create similar questions more rigorously. As pointed out before, this study's goal was not to show how to teach effectively. To prove the effectiveness, we should have gathered the students' performance data after graduation. It can be a daunting task, but not an impossible one. Finally, given the small sample size of the data, we believe applying nonparametric approaches such as the Wilcoxon Signed-Rank and Mann-Whitney U Test was reasonable. However, one can adopt other parametric methods if the sample size can be made large.

We suggest two additional research questions for future research, which we have not sufficiently investigated in this paper. First, note that in the research framework (**Figure 1**), we did not specifically consider any causal relationship between organizational convergence and individual knowledge, implying that it was outside the scope of the current study. Although we can assume a positive correlation between the two, future research must confirm it. The other question concerns comparing active learning (like in this study) and more traditional lecture-oriented pedagogy. Although we can propose a general superiority of active learning to lecture-oriented learning, we should rigorously investigate it to derive contingent outcomes. For instance, it might be possible to see that the traditional approach can more effectively enhance specific knowledge performance measures under certain conditions. Answering these two research questions will extend our understanding of the relationship between teaching and practical performance.

We believe this study contributes to administrative sciences by demonstrating how organizational assimilation processes, typically studied in workplace settings, operate similarly within educational organizations. By conceptualizing the classroom as a temporary organization, we extend theories of shared cognition, organizational learning, and socialization into an educational domain. Future research could explore how structured interventions optimize convergence and independent thinking to maximize organizational effectiveness.

Institutional review board statement: Ethical review and approval were waived for this study due to the minimal-risk nature of the research, which involved voluntary survey responses from adult students for educational research purposes and posed no foreseeable risks.

Informed consent statement: Informed consent was obtained from all subjects involved in the study.

Conflict of interest: The author declares no conflict of interest.

References

1. Dewey J. How we think: A restatement of the relation of reflective thinking to the educative process. D.C. Heath; 1933.
2. Baron J. Reflective thinking as a goal of education. Intelligence. 1981; 5(4): 291–309.
3. Anderson ML, Lu F. Learning to Manage and Managing to Learn: The Effects of Student Leadership Service. Management Science. 2016; 63(10): 3246–3261.
4. Rahmat NH, Othman NA, Muhammad AM, et al. Assimilation and accommodation: exploring the dynamics of class discussions. European Journal of Education Studies. 2019; 6(1): 222–238.

5. He P, Edwards JC, Schwarte Y. Cultivating connectedness and elevating educational experiences for international students in blended learning: reflections from the pandemic era and key takeaways. Journal of International Education in Business. 2024; 17(2): 193–209.
6. Blazar D, Kraft MA. Teacher and teaching effects on students' attitudes and behavior. Education Evaluation Policy Analysis. 2017; 39(1): 146–170.
7. Kim B. Teaching operations management for students' thinking and decision-making. International Journal of Information and Operations Management Education. 2024; 7(4): 332–347.
8. Argote L. Organizational learning: Creating, retaining, and transferring knowledge. Springer; 2013.
9. Kim B. Supply Chain Management: A Learning Perspective. Cambridge University Press; 2018.
10. Longbottom JE, Butler PH. Why teach science? Setting rational goals for science education. Science Education. 1999; 83(4): 473–492
11. Stout RJ, Cannon-Bowers JA, Salas E, Milanovich DM. Planning, Shared Mental Models, and Coordinated Performance: An Empirical Link Is Established. Human Factors. 1999; 41(1): 61–71.
12. Gailliard BM, Myers KK, Seibold DR. Organizational Assimilation: A Multidimensional Reconceptualization and Measure. Management Communication Quarterly. 2010; 24(4): 552–578.
13. Balwant PT. Teaching flexible leadership via an experiential learning exercise: A simulation and self-reflection. Journal of Education for Business. 2022; 97(8): 562–574.
14. Aguirre G, Hyman MR, Goudge D, et al. Teaching ethics to marketing and logistics majors: A transformative learning experiment. Journal of Education for Business. 2017; 92(3): 121–128.
15. Anwar I, Thoudam P, Saleem I. Role of entrepreneurial education in shaping entrepreneurial intention among university students: Testing the hypotheses using mediation and moderation approach. Journal of Education for Business. 2022; 97(1): 8–20.
16. Connell NAD, Klein JH, Powell PL. It's tacit knowledge but not as we know it: Redirecting the search for knowledge. Journal of the Operational Research Society. 2003; 54(2): 140–152.
17. Williams JAS, Reid R, Billings PE, Belford NC. Engaging Students in Optimization Modeling: Gaining Business Disruption Insights. INFORMS Transactions on Education. 2022; 24(1): 1–117.
18. Jones JS, Olson JR, Southard P. Kaizen Events at the University of St. Thomas: Experiential Learning for Students. INFORMS Transactions on Education. 2021; 21(3): 115–129.
19. Carreras AL, Kaur P. Teaching Problem Structuring Methods: Improving Understanding Through Meaningful Learning. INFORMS Transactions on Education. 2011; 12(1): 20–30.
20. Babier A, Fernandes C, Zhu IY. Advising Student-Driven Analytics Projects: A Summary of Experiences and Lessons Learned. INFORMS Transactions on Education. 2022; 23(2): 57–135.
21. Drake MJ. Teaching OR/MS with Cases: A Review and New Suggestions. INFORMS Transactions on Education. 2019; 19(2): 57–66.
22. Carlos-Arroyo M, Vázquez-Parra JC, Cruz-Sandoval M, Romero-Rodríguez JM. Development of complex thinking in a professional training process: An approach to business students of a Mexican University. Journal of Education for Business. 2023; 98(8): 483–491. doi: 10.1080/08832323.2023.2233044
23. Seidel VP, Marion TJ, Fixson SK. Innovating How to Learn Design Thinking, Making, and Innovation: Incorporating Multiple Modes in Teaching the Innovation Process. INFORMS Transactions on Education. 2020; 20(2): 73–84.
24. Natarajarathinam M, Qiu S, Lu W. (2022). Designing and Assessing a Multidisciplinary Service-Learning Course in Supply Chain Management. INFORMS Transactions on Education. 2022; 23(3): 137–217.
25. Elsawah S, Ho ATL, Ryan MJ. Teaching Systems Thinking in Higher Education. INFORMS Transactions on Education. 2022; 22(2): 66–102.
26. Argyris C. Knowledge for Action. A Guide to Overcoming Barriers to Organizational Change. Jossey Bass; 1993.
27. Jablin FM. Organizational entry, assimilation, and exit. In: Jablin FM, Putnam LL, Roberts KH, Porter LW (editors). Handbook of organizational communication: An interdisciplinary perspective. Sage; 1987. pp. 679–740.
28. Anderson SW, Kimball A. Evidence for the Feedback Role of Performance Measurement Systems. Management Science. 2019; 65(9): 4385–4406.
29. Rentsch JR, Klimoski RJ. Why do 'great minds' think alike?: Antecedents of team member schema agreement. Journal of Organizational Behavior. 2001; 22: 107–120.

30. Cooke NJ, Gorman JC, Myers CW, Duran JL. Interactive Team Cognition. Cognitive Science. 2013; 37: 255–285.
31. Canonne C, Aucouturier JJ. Play together, think alike: Shared mental models in expert music improvisers. Psychology of Music. 2015; 44(3): 544–558.
32. Mohammed S, Ferzandi L, Hamilton K. Metaphor no more: A 15-year review of the team mental model construct. Journal of Management. 2010; 36(4): 876–910. doi: 10.1177/0149206309356804
33. Cannon-Bowers JA, Salas E. Reflections on shared cognition. Journal of Organizational Behavior. 2001; 22(2): 195–202. doi: 10.1002/job.82
34. Reagans R, Argote L, Brooks D. Individual Experience and Experience Working Together: Predicting Learning Rates from Knowing Who Knows What and Knowing How to Work Together. Management Science. 2005; 51(6): 869–881.
35. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis, 7th ed. Pearson Educational International; 2010.
36. Watson K, Klingenberg B, Polito T, Geurts TG. Impact of environmental management system implementation on financial performance: A comparison of two corporate strategies. Management of Environmental Quality. 2004; 15(6): 622–628.
37. Bauer TN, Bodner T, Erdogan B, Truxillo DM, Tucker JS. Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents, outcomes, and methods. Journal of Applied Psychology. 2007; 92(3): 707–721. doi: 10.1037/0021-9010.92.3.707
38. Schön DA. The reflective practitioner: How professionals think in action. Routledge; 1983.
39. Brown JA. Experiential learning beyond the textbook in operations management. Journal of Education for Business. 2023; 98(6): 331–337.
40. Lave J, Wenger E. Situated learning: Legitimate peripheral participation. Cambridge University Press; 1991.
41. Kolb DA. Experiential learning: Experience as the source of learning and development. Prentice-Hall; 1984.
42. Sweller J. Cognitive load during problem solving: Effects on learning. Cognitive Science. 1988; 12(2): 257–285. doi: 10.1207/s15516709cog1202_4
43. Edmondson A. Psychological safety and learning behavior in work teams. Administrative Science Quarterly. 1999; 44(2): 350–383. doi: 10.2307/2666999
44. Baldwin TT, Ford JK. Transfer of training: A review and directions for future research. Personnel Psychology. 1988; 41(1): 63–105. doi: 10.1111/j.1744-6570.1988.tb00632.x