ACROSS THE UNIVERSE

Building the skill universe through case solving

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ABSTRACT

Case method has been widely used and has an extensive track record in business education. Skill development through case solving however has been given less attention to in the academic debate. The paper aims to fill this gap by asking what skills can be developed through case solving. Based on empirical evidences gained through case competions the paper introduces a problem solving framework applicable in International Business education and helps to structure different IB challenges by investigating how can skills be developed and practiced through case study solving. The CASE model consists of four phases (Collect, Analyze, Solve, End) and provides a problem solving framework for both IB students and lecturers by summarizing the main steps of case study solving process. Beside theorizing the skill development achievable by case solving, the CASE model gives a practical guideline to students and lecturers on how to organize their workflow during case solving. CASE SOLVERS' Skill Universe includes twenty-one essential problem solving skills which can be developed through case-based IB courses. These skills as part of the Skill Universe are organized around four constellations (Create, Conduct, Collaborate, Communicate). The paper aims to contribute to the academic discussion on interdisciplinary innovation in IB education.

Keywords: **case method, international business, education, skill development**

INTRODUCTION

Collaborative problem solving skills have gained importance in last decades. Skills and skill-based education are essential to enable students to adapt to changing environments. The composition of necessary employability skills changed, and there is an increasing demand for talents who can deal with complex, ill-structured problems and work efficiently in a team.

Due to easy access to knowledge, educational systems will put increasing focus on skill development, rather than knowledge development. The countries that move faster will have an advantage in the global economy. Despite national efforts for skill development focus, the rigid school systems will have difficulty retooling their operations and reskilling their teachers. Alternative educational solutions will seriously disrupt the role of universities, making a non-university background acceptable into many top-tier positions. The way we learn is changing as well. New educational ventures are emerging and new educational formats (e.g. blended learning, peer-to-peer learning) are continuously changing the educational landscape.

Case study based education is a pedagogical method which may be applied in both higher- and public education. Case method can appear in formal (1), non-formal (2) and informal (3) education (Mündel and Schugurensky, 2008). Currently the case method is mainly used in the executive education programs which is integrated into the formal curriculum (e.g. Harvard Business School). Beside formal education there are non-formal initiatives based on short, workshop-based case solving training sessions. These non-formal types of education are run by training companies (e.g. Case Solvers) and focusing more on the skill development aspects of case solving. Informal education is based on peer-to-peer learning experience of individuals. Trends show that the institutionalized forms of education are disrupted by non-formal initiatives (Mündel and Schugurensky, 2008). These tendencies highlight that International Business education needs to

be renewed and this paper is contributing to this thinking by analysing how skills can be developed through case method.

Societies have gone through dramatic changes in recent decades, raising inequalities and critics against globalisation are just one of the few signs of transformation. Tendencies show that middle class is getting outnumbered by lower and upper-income households, thus to sustain their middle-class social position people need more knowledge. Earlier when machines came into to labour market they crowded some employees out, but at the same time new jobs were generated. Now we are living in the age of intelligent machines, where correlation between value and knowledge are shifting, some jobs are moving into gig economy, even high prestigious jobs are not guarenteed a future of (Aoun, 2017). Thus, candidates with the right skills – e.g. problem solving, computer skills – will be extremelly sought after on the labor market (OECD, 2018).

This paper aims to answer the question: '*What skills can be developed by case solving?*' and proposes a theoretical framework that is empirically grounded. However, this study does not aim to test the propositions outlined below and deliver empirical evidences of them. The concepts introduced here are based on the author's experience gained through six years of facilitating case solving workshops and organising case competitions in 28 countries worldwide. The paper is a theoretical contribution and its findings need to be further tested. The paper discusses the following two propositions:

Proposition #1: The CASE model as a problem solving framework is applicable during case study based classroom discussions and case competitions.

Proposition #2: There is a universal problem solving skillset – the CASE SOLVERS' Skill Universe - which can be develop through CASE method in different educational settings.

To set the conceptual foundations, the first chapter provides an overview about the academic literature on cognitive capabilities. It gives the basic definitions and places the research propositions in the field of cognitive studies. The second chapter introduces the case method and provides the main definitions of case solving. The third section of this paper describes the CASE model and provides an overview of the main phases and steps of case solving process. The fourth chapter introduces CASE SOLVERS' Skill Universe, which defines and describes 21 essential problem solving skills in a holistic framework. In the last part of the paper the key findings and the main directions of further testing and validation in the field of IB education are introduced.

DEVELOPMENT OF RESEARCH ON COGNITIVE CAPABILITIES

The development of the academic research and literature on problem solving skills and cognitive capabilities dates back to the first decade of the 20th century when psychologists started to investigate the question: why someone is more suitable for certain tasks than others. Alfred Binet and Théodore Simon published the Binet-Simon test in 1905, which measured the mental age of school children (Kaufman, 2009). This test is considered as one of the predecessor of the IQ tests. Traditionally the application of the first tests was in education and military. This changed with the development of field of organizational development and human resource management, when scholars started to investigate the characteristics of talent and the source of outstanding job performances. Traditionally, the academic performance and the knowledge were considered as the main predictors of outstanding job performance. This approach was challenged by David McClelland who evolved the definition of competencies.

The development of cognitive studies

The theory of personality investigates the relationships among a person's unconscious motives, self-schema and observed behavioral patterns (McClelland, 1951). McClelland (1973) presented a dataset through which he demonstrated that the traditional achievement and intelligence scores (e.g. IQ) may not be able to predict job success. What is required according to him is to profile the exact competencies necessary to perform a given job. This can be achieved by using a variety of tests. Based on McClelland's findings Spencer and Spencer (1993) defined competencies as skills and abilities acquired through work experience, life experience, study or training.

According to Boyatzis (1982), maximum performance is believed to occur when the person's capability or talent is consistent with the needs of the job demands and the organizational

environment. Expertise and experience (1), knowledge (2) and assortment of basic cognitive competencies (3) are considered as threshold competencies. Boyatzis (1982) also identified three clusters of competencies which are differentiating the outstanding performance from the average. Cognitive competencies (e.g. systems thinking), emotional intelligence (e.g. self-awareness, self-management) and social intelligence (e.g. social awareness, relationship management) are considered as the three clusters of key competences.

Salovey and Mayer (1990, pp. 188) defined emotional intelligence as 'the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behavior'. Emotional intelligence is two times more important than the practical and cognitive competencies IQ (Goleman, 1998). Emotional competence is considered as a learned capability based on emotional intelligence which results in outstanding performance at work (Goleman and Boyatzis, 2017). Goleman and Boyatzis (2017) identified four domains and competencies of Emotional Intelligence: *Self-awareness* (emotional self-awareness) (1), *self-management* (emotional self-control, adaptability, achievement orientation, positive outlook) (2), *social awareness* (empathy, organizational awareness) (3) and *relationship management* (influence, coach and mentor, conflict management, teamwork, inspirational leadership) (4). These domains and competencies consist of 12 EI competencies which are learned and learnable capabilities.

Katz and Kahn (1986) grouped the competencies into for different categories: technical or functional (1), managerial (2), human (3) and conceptual (4). Carrol and McCrackin (1988) used three main categories for competencies: 1) Core competencies to form the basis for strategic directions (Hamel and Prahalad, 1994), 2) Leadership or managerial competencies to lead people and the organization and 3) Job-specific functional competencies to perform a particular job role.

The Iceberg model of competencies

Spencer and Spencer (1993) was building on McClelland's work on competencies and developed the Iceberg model of competency levels (see Figure 1.). The model distinguishes visible – above the waterline – and hidden – below the waterline – elements of competency. Skills and knowledge are considered as the peak of the performance capability and personality traits, motives, social values and self-concept are seen as key predictors of high performance.

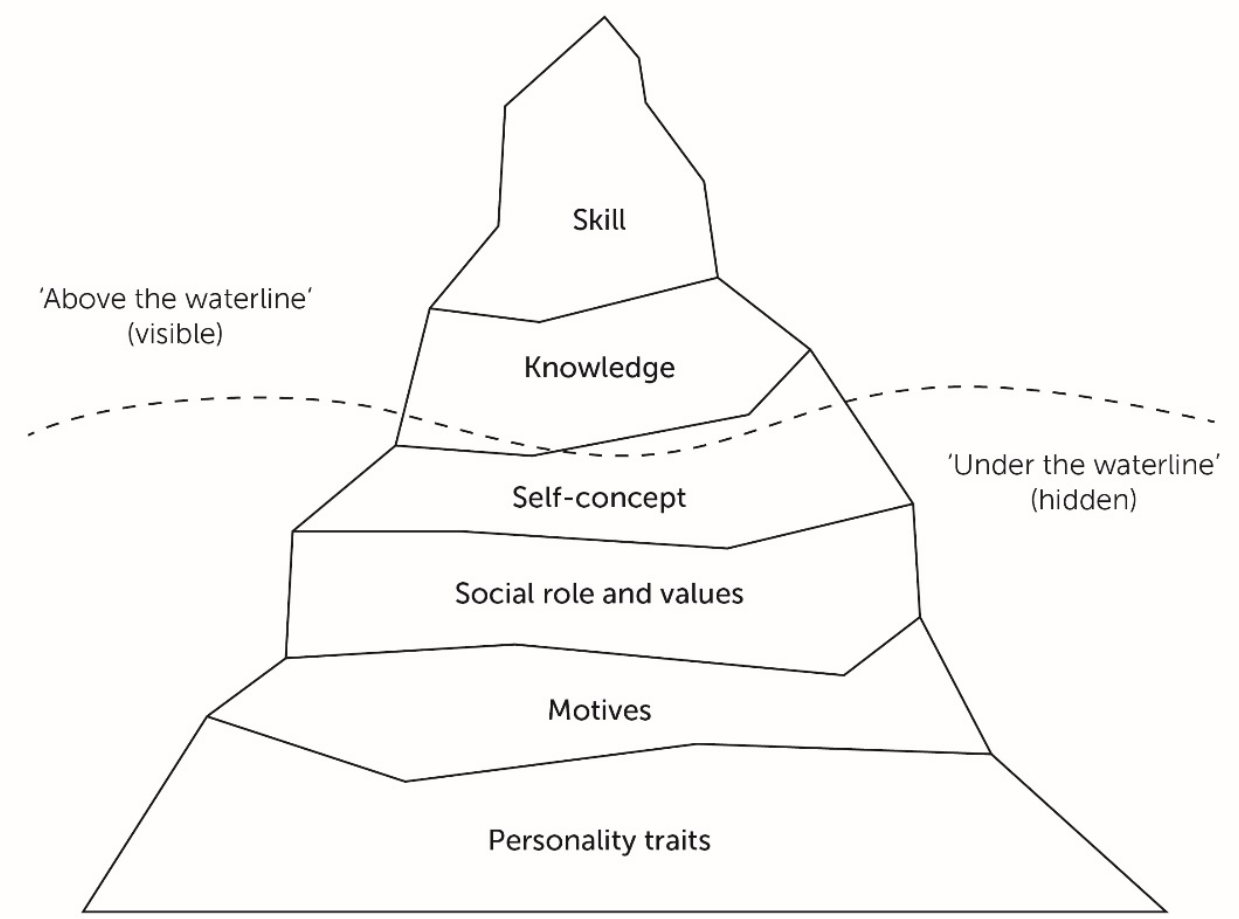

Figure 1: Iceberg model of competency levels
Source: Spencer and Spencer (1993)

Spencer and Spencer (1993) identified the following six levels of competency in the Iceberg model:

1. *Personality traits*: Physical characteristics and consistent responses of an individual to situations or information.
2. *Motives*: Psychological factors that drive a person's behavior into a certain direction.
3. *Social role and values*: Values which are considered as important in a certain social status.
4. *Self-concept*: The way how an individual sees him or herself.
5. *Knowledge*: The state of understanding a set of factual information related to a certain field based on former education or other experience.
6. *Skills*: A developed ability of using knowledge gained in advance to solve a problem in a particular situation.

Although, this paper aims to presents a general problem solving framework and a holistic skill universe which is based on the case method, it is essential to understand the context, background and levels of competencies. The Iceberg model provides a holistic approach on the different levels of competences.

CASE METHOD IN INTERNATIONAL BUSINESS EDUCATION

IB education needs a new model in which the focus is not solely on undergraduate and graduate students, rather on the lifelong learning of professionals. Education in general is shifting from a '*delivering facts*' approach into a '*refuel the student's mental engine*' mindset (Aoun, 2017). IB professionals will need to develop collaborative problem solving skills and universities need to develop methods to nurture the cognitive capabilities related to critical and system thinking.

Case method has been used as a tool to develop problem solving skills for more than 150 years (Weaver, 1991). The first application of the method is associated with Harvard lecturers who conducted interviews with company founders and managers in order to collect challenges they are facing with. These interviews were used as case studies and served as problem focused teaching materials (Merseth, 1991).

According to Levin (1995), case studies are narratives with a context, which describe complex problems. Thus, the case study is the description of a real life business situation, which includes the related decisions, challenges, opportunities and attitudes (Erskine et. al., 1998). Case studies have a wide variety by the format and scope. They can be distinguished by three characteristics: the type (1), structure (2) of the core problem and the accuracy of questions (3) (Ábrahám et. al., 2019). By the type of the problem, corporate strategy and functional strategy cases are the major types of existing case studies. In terms of the structure of the problem ill-structured and well-structured problems can be distinguished (Bartee, 1973) depending on the amount and quality of available information. In case of ill-structured problems the main goal is to build well- (or at least better) structured problems. Finally, in some cases there are explicit questions which are supposed be answered directly by the students. If a case study is open-ended (does not includes explicity

question) students needs to investigate the roots of the problem and identify the key question of the case study.

The three dimensions – type and structure of problem, accuracy of questions – help us to provide a case study definition. "*The case study is a document which is based on a strategic business problem, includes all the relevant information about the situation and centered by a decision maker who has the authority to solve the discovered challenges*." (Ábrahám et. al., 2019)

This paper will investigate the case based classroom discussions and the case competitions as the two main form of case-based education

A) Class room discussions through case studies

Case-method has numerous interpretations in the scholarly literature. Some (Freeman, 2005; Hammond, 2002; Merseth, 1991; Schulman,1992) highlight its relevance as and educational method. These authors are focusing on the class room discussions led by a faculty member. Argyris (1980) identified the five key elements (relevant business problem, intense involvement of the class participants, minimal participation of the instructors, freedom of opinions and the drama) of case-based education. Through case discussions participants can develop new theories and academic concepts (Christensen and Carlile, 2009).

The case method is applied mainly in MBA programs these days with the proven aim to develop the students' cognitive and emotional intelligence (Boyatzis et al., 2002). Apart from the previously mentioned skills, problem solving, critical thinking and collaborative skills can also be developed (Jerrad, 2005). When applying case studies, students are required to think logically and use their intuition at the same time (Kreber, 2001).

The case method has been used in IB education at Corvinus Business School between 2017 and 2019 on International Business Economics course by the author of this paper. The students had to solve 5 IB cases during the course in various formats. The different formats may give different room for the instructor to educate students. The students had to write case study reports about two different cases in teams and solve 3 other case studies as part of a case discussion. The selected cases were in-line with the specific business problem of MNEs and the teaching objectives of the course. The classroom discussions were organized and tested in three different setups: plenary case discussion (1), team-based case discussion (2) and home case solving (3).

Dooley and Skinner (1977) identified four different roles of instructor along the teaching goal, style and philosophy: Facilitator, Coach, Quarterback and Demonstrator. During the plenary case discussion, the instructor acted as a Quarterback and was in charge of crucial decisions about what is to be done, while in case of team-based case discussion the instructor was acting as a Coach, whose task was to motivate and develop the interest of the students. In case of home case solving (which had similar format to the case competitions), the instructor acted as a Coach, who announced the case study to the students and then gave the floor to the students to solve the case study.

B) Case competitions through case studies

Case Competitions are unique opportunities for students particularly in business but also in other areas to solve at least one case study within a certain amount of time in a competitive situation. Participants have the opportunity to improve their ability to work in team since the majority of these contests are team-based. A team always has its own rules, roles and processes. The members are planning and implementing the main steps of the case solving process by themselves (Kunselman and Johnson, 2004). After they are finished with case solving, they present their case

solutions to a professional jury. Maier-Lytle et. al. (2010) identified four main benefits of participating on a case competition: gaining new, specialized knowledge (1), develop communication skills (2), learn how to work in team (3) and improve the position in the labor market (4).

Case competitions create opportunities for companies to observe students in a professional working environment, evaluate their performance and utilize case competitions as a screening process as part of their talent acquisition and recruitment programs. From the participants perspective the most important benefit of case competitions is their contribution to the students' professional development (Menna, 2010; Corner et. al., 2006). Through cases students simulate a real-world business situation and they are given an on-the-job and peer-to-peer learning opportunity.

On case competition case companies may get valid feedback from young generations on their existing strategies, inspired by new ideas or validate the existing ones. This kind of mini consulting simulation may help to engage employees and get fresh ideas for further strategy development activities. International case competitions are also considered as platforms to promote certain IB topics among an international professional community.

Since the primary goal of this paper is to introduce a comprehensive case solving framework and skillset which is applicable in IB education, the paper will further elaborate the plenary case discussion, team-based case discussion and case competition educational settings. Table 1 describes the teaching objectives, role of instructor and expected outcome of each educational setting.

Criteria	A1) Plenary case discussion	A2) Team-based case discussion	B) Case Competition
Learning objectives	Teach new concepts through a case study Develop cognitive skills	Teach new concepts through a case study Develop cognitive & collaborative skills	Develop cognitive, collaborative & presentation skills
Role of instructor	Facilitator / Coach / Quarterback / Demonstrator	Facilitator / Coach / Quarterback / Demonstrator	Coach
Expected outcome	Ideas and opinions about the case solution	Flipchart-based discussion & presentation	PPT presentation about the case analysis and the recommended strategy

Table 1: Teaching objectives, role of instructor and expected outcomes of case method educational settings

Source: Own concept

THE INTRODUCTION OF THE CASE MODEL

The paper aims to capture case solving by a detailed problem solving framework, the CASE model (See Figure 2). The CASE model provides a holistic approach on two main dimensions (Ábrahám et. al., 2018): First, the model summarizes the key sequential steps of the case study solving process from the data collection to the final delivery. It identifies four main phases: Collect, Analyze, Solve and End. Secondly, it gives a guideline to students on how to organize the case solving workflow at an individual and group level.

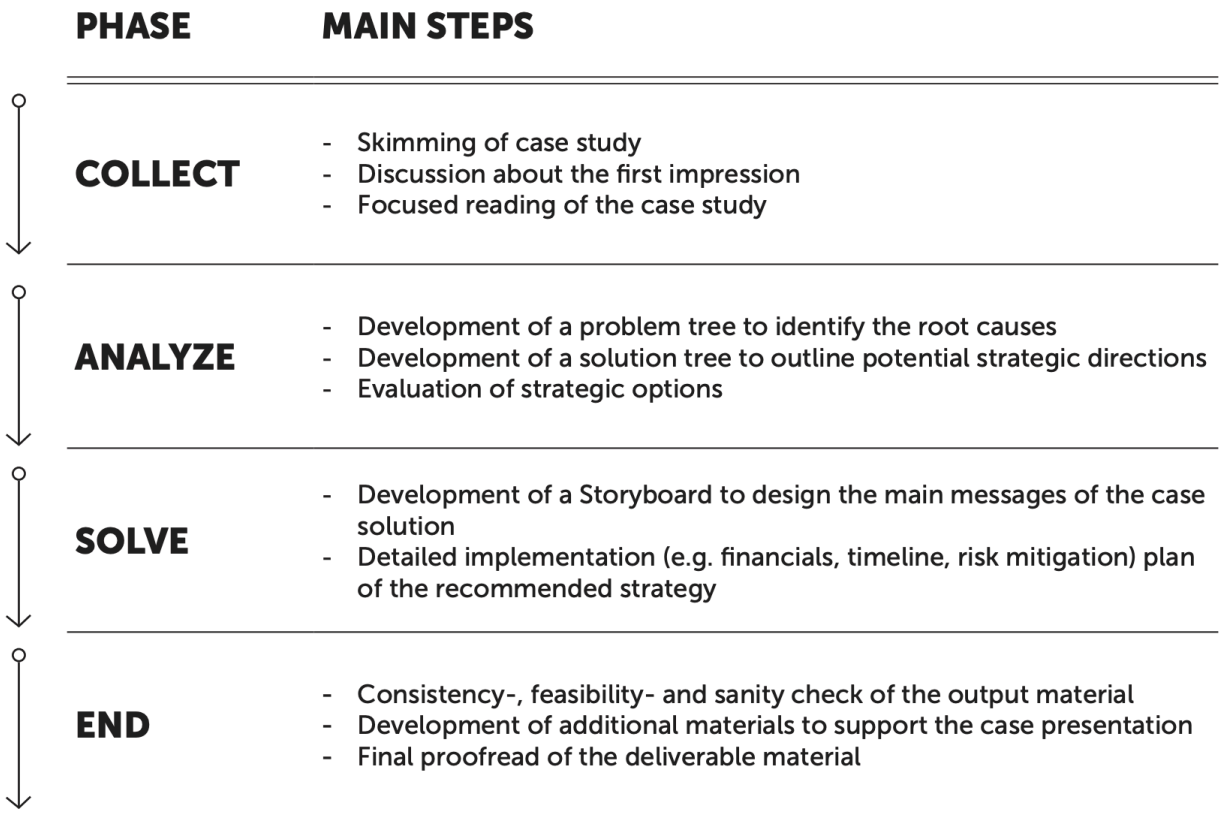

Figure 2: CASE model and the phases of case solving

Source: Own concept

Phase 1: Collect

The case solving process starts with data collection and clarification. The main objective of the Collect step is to have a basic understanding about the core situation (e.g. industry, company, decision maker, challenge) of the case study. The case facilitates a thorough analysis of the focal organization and the environment it faces (Corner et. al 2006: 439), thus it serves as the basis for the identification of the case company context.

In the Collect phase, students are *skimming the case* (1) and then *discuss* their *first impressions* (2). This is an important step to ensure that the team has the common understanding about the core situation. After the brief discussion of the first impressions, the team members start the *focused reading* (3) of the case study.

Having collected the most essential information, the team or the individual problem solver defines the question to be answered. Apart from the problem definition and the main question, key performance indicators should be determined at this stage. Around 10-15% of the allocated time to solve the case study should be spent on the Collect phase. Most of this time is supposed to be spent with skimming through the case study, dividing it among the team members and reading the individuals' part thoroughly.

Phase 2: Analyze

The Analyze phase has three main steps: First, the case solvers identify the roots and the causes of the core problem through a *Problem tree* (1). Secondly, they set the scope and develop the key question of the case study and build a *Solution tree* (2) to identify the different options. Finally, once all the possible options are developed on the Solutions tree, case solver(s) has to decide on which strategy to choose by *evaluating options* (3) and connect main KPIs to them.

In case of open-ended case studies, case solvers need to deep dive and identify the root of the challenges mentioned in the case. Case solvers may use various techniques and analytical tools to gain more information about the causes of a problem. These analytical tools (e.g. SWOT, PEST, Porter 5 forces) are widely taught in business schools. During the case solving process students apply these models for the specific case and gain additional information about the customers, product, company and competitors. Once the research and analysis are done, a Problem tree can serve as a decision-making tool to identify the root problem of a case study. It breaks down the problem into its potential causes and helps to understand the source of it. The tree structure helps to understand the patterns and characteristics of the core problem.

The second step within the Analyze phase is to develop a key question. This question is to be broken down into different solutions through a Solution tree. The Solution tree is a decision-making tool to identify the alternative solutions for the problem. It helps to generate potential solutions which answer the key questions of the case study. There are different tools and concepts which could be used as a Solution tree during the case solving process. The equation of profitability helps the case solvers to break down a problem and build a solution from the financial perspective, while the Ansoff matrix helps to understand the problem and identify different solutions from the market-product perspective.

The Final step of the Analysis phase is to set the evaluation criteria for decision making and organize them into a scoreboard. This scoreboard helps to build a well-structured problem through collecting all the Pros and Cons of the different options in order to make a more objective quality decision. If a case study is open-ended and the challenges and questions are not well defined and structured, it may require more time (30% to 50%) to be spent with the Analysis.

Phase 3: Solve

After the Analysis part, the next step is to solve the problem. As the third step of the CASE method, students prepare an implementation plan for the chosen strategy. To solve the problem, case solvers should breakdown the recommended solution into its elements and build an implementation on it. The main objective of this phase is to provide the details behind the recommended strategy.

The first step is to build the storyline of the case solution (1) and *prepare a storyboard* the initial draft for the outcome of the case solving. Once the story board is fixed and the tasks are determined the second step is the *implementation of the recommended strategy* (2). During the implementation case solver(s) answer the 5W questions: Why, Who, What, When, Where.

50% of the given time should be allocated to the Solve section: when solving a case study with a team, team members work during this time alone or in pairs in order to exploit this period as much as it is possible.

Phase 4: End

The fourth and last phase of the CASE Model is the End. As the time pressure is growing in the last few minutes, it is crucial to be aware of the must have steps that need to be done in order to end well the case solving process. Thus, the main objective of this phase is to prepare a client (or discussion) ready output which is consistent and coherent. This phase includes three different steps. The case solver goes through the output material (e.g. ppt presentation, word report) and checks the consistency (1). As a second step, additional materials are prepared to strengthen a solution (2). Finally, the whole material is fine-tuned: the slides are collected, typos are checked and the wording is proof read (3). Around 10-15% should be devoted to the last phase of the method just like to the first part, Collect.

The CASE Model provides a detailed problem solving framework for the students and teachers to solve case studies. The model defines case solving as a process where the case solver solves a business problem with others and prepare a presentable output for its internal or external clients. The model has three major limitations: application, available time and the team setup. First, the model may be applied in any problem solving situation when the person of the decision maker, the available time and the form of the expected outcome is known. The model assumes that the explicitly or implicitly raised problems are business strategy related challenges and the case solver has a certain timeframe to come up with a solution. The format of the expected outcome may change some elements of the CASE model. Different type of outcome (e.g. video, animation film, infographic or chatbot) may require additional or different steps in the Solve and End phases. Secondly, the available time may change the weights of the different phases. In case of a one our case study, the case solver has no time for detailed analysis, the problem solving activity is more relies on the intuitions and business sense, while in case of a 24 hour long case solving activity, data collection, analytical skills are more in focus. Finally, team setup is the third critical factor which may limit the model, as it is designed and used for teams with four members. Teams with 2-3 members may require additional time and steps during the process, while in case of teams with 5+ team member may require completely different coordination.

CASE SOLVERS' SKILL UNIVERSE

The academic literature is lacking a comprehensive framework which structures the relationship between problem solving skills and the case solving. This paper proposes that there is a universal problem solving skillset, which could be developed through the CASE method. This problem solving skillset is called CASE SOLVERS' Skill Universe (See Figure 3). The Universe metaphor is correct as the whole problem solving skillset consists of skill categories and skills. The skill categories are called constellations, while the skills are considered as the stars of the Universe.

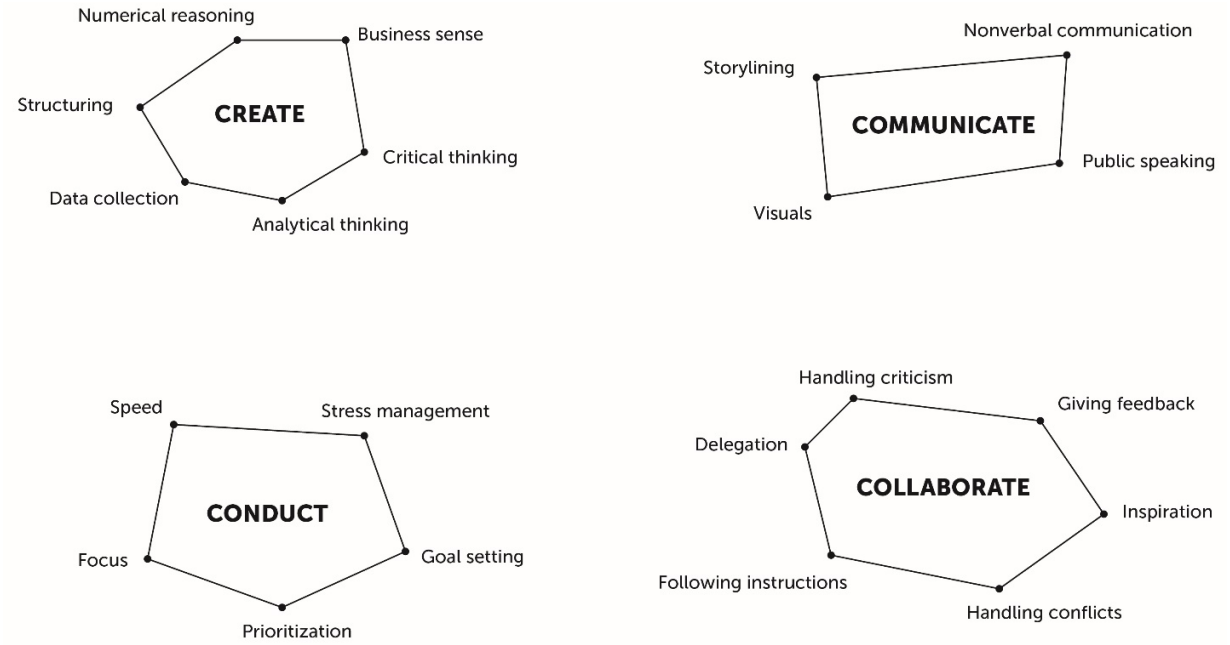

Figure 3: Elements of CASE SOLVERS' Skill Universe

Source: Own concept

CASE SOLVERS' Skill Universe consists of 4 main constellations: *Create, Conduct, Collaborate* and *Communicate.* These skill categories are the four main success factors of case solving. Each constellation is consisted of skills which could be developed through the case solving activity. Individuals are *Creating* a solution by intellectually solving the case. As the working environment is changed dramatically in the past decades, knowing the right solution is not enough, students and

employees should be able to work under time pressure with strict deadlines. *Conduct* refers to this aspect of the problem solving. In most of the cases, problem solving is not an individual activity, the case solvers need to *Collaborate* with others. This constellation covers all aspects of working with others. As the amount of information increased and the people's attention span decreased significantly the right *Communication* became crucial in problem solving.

The following chapter introduces the concepts behind the constellations and provides more information about the stars by defining the essential case solving skills.

Constellation #1: Create a solution

The Create skill category includes 6 skills which are considered as the fundamental problem solving skills (see Table 2). A case solver needs to deal with high amount of qualitative and quantitative data during the case solving process. There are cases, when important data is missing, while in other cases there are too many available data. *Data collection* is a skill when the case solver gathers and measures the available information. When students investigate the root causes of the core problem they use their *analytical thinking* skills. They break down the complex problems into single pieces in order to find the roots of the given issue. *Structuring* means the systematic arrangement of the collected data in order to gain additional information supporting the decision making process. Once the information is structured, then an objective criteria set is needed. This is when the case solver uses his/her *critical thinking* skill in order to form a judgment based on the objective facts. The facts behind the structure may be qualitative and quantitative, that is why *business sense* and *numerical reasoning* are crucial in business cases.

Skill	**Definition**
Data collection	The process of gathering and measuring information on targeted variables in an established system.
Analytical thinking	A step-by-step approach to thinking that allows individuals to break down complex problems into single and manageable components.

	Making up hypotheses and statements based on a set of information which then can be examined qualitatively and quantitatively.
Structuring	Arranging the collected data effectively in order to form an organized whole.
Critical thinking	The objective analysis of facts to form a judgment. Drawing reasonable conclusions from a set of information and discriminating between useful and less useful details to make a decision.
Business Sense	Keenness and quickness in understanding and dealing with a "business situation" using pre-gathered knowledge of facts and correspondences.
Numerical reasoning	Ability to deal with numbers quickly and accurately in order to evaluate a statement or hypothesis quantitatively. This contains questions that assess your knowledge of ratios, percentages, number sequences, data interpretation, financial analysis and currency conversion.

Table 2: Elements of Create

Source: Own concept (2019)

The Create constellation is in-line with the four phases of CASE Model. The skills of Create are mainly used in the Collect and Analyze phases. Case solver has to deal with ill-structured problem(s), make his/her assumptions in order to fill the informational gap and transform the problem into a well-structured solution. Problem and Solution trees may help the students to tackle this exercise. The six skills of Create constellation are the cognitive skills which includes the different aspects of problem solving to perform mental activities.

To measure and develop skills in the Create constellation, the management consulting firms developed the case interview technique, which is able to test the individual's problem solving skills through short – 30 minutes long – case solving dialog in an interview setup. Due to the limitations (time frame and amount of available data) of the format, the candidates have to build their structured recommendations on their own assumptions. The case interview technique can be used in a class room environment in international business education

Constellation #2: Conduct a solution

The second constellation of CASE SOLVERS' Skill Universe is Conduct, which includes five skills (see Table 3). Conduct reflects to the fact the it is not enough to have the right cognitive skills, but the individuals needs to be able to execute the problem solving and finish and deliver a solution by the required deadlines. Goleman and Boyatzis (2017) identified the for domains and competencies of EI. These domains are connected to Conduct, however the self-awareness, self-management, social-awareness domains are considered as hidden layers of the Iceberg model of competency levels (Spencer and Spencer, 1993) and this paper focuses only on the visible aspects of skills and competencies.

To conduct a solution, the case solver needs to set the main goals of the case solution. This *goal setting* activity is considered as a process, where the objectives should be specific, measurable, achievable, relevant and time bounded. The lack of clear goals will be blurry and unexpected tasks, disruptions and emotions may slow down or undermine the whole case solving process. Once the goal of case solving is set, the case solver needs to plan and priories the tasks. *Prioritization* is the arrangement of items or activities in order of importance relative to each other. There are other factors which may disrupt the problem solving activity. *Focus*, the ability to execute a task without procrastination and maintain the attention during the process are also essential. Unexpected emotions may cause stress during the workflow. These emotions are connected to the case solver's personal traits, self-awareness and self-control. To conduct the solution, its essential to *manage stress* and to have the ability to understand the causes and feelings of tension or anxiety and manage them successfully. The fifth skill within the Conduct constellation is *speed*, which is considered as a cognitive ability that could be defined as the time it takes a person to conduct a

mental task. This skill could be limited by wrong prioritization, lacking the focus and unexpected stress.

Skill	Definition
setting	A process that starts with careful consideration of what you want and identifying what you actually can achieve in order to set realistic and accessible targets.
Prioritization	Prioritization is the activity that arranges items or activities in order of importance relative to each other
Focus	A thinking skill that allows people to begin a task without procrastination and then maintain their attention and effort until the task is complete successfully - a combination of speed and efficiency.
Stress management	An individual's ability to understand the causes and feelings of tension or anxiety and managing them successfully
Speed	Processing speed is a cognitive ability that could be defined as the time it takes a person to do a mental task.

Table 3: Conduct skills

Source: Own concept (2019)

The conduct skills have an increasing importance when the case solvers have to self-organize their work and the instructor has no direct influence (e.g. by setting internal deadlines) on the workflow itself. In case of a case competition, the teams need to plan their schedule and prioritize their tasks, focus and manage stress within the given timeframe.

Constellation #3: Collaborate to have a solution

In most of the cases, problem solving is not an individual activity, the case solvers need to collaborate with each other and with other stakeholders (e.g. clients, suppliers, other employees). Students has to act as a team along the whole case solving process from the collect phase till the last question about the final presentation. The collaboration in case solving is used around three factors: Tasks (1), Feedback (2) and Leadership (3). Each factor has a positive and negative collaborative aspect which can be measured and developed by a skill (see Table 4).

When case solvers are working in a team, they need to delegate tasks and follow instructions. Both skills are crucial in the day-to-day work and can be considered as important employability skills. *Delegation* lies on the responsibility and the role of a team member and meaning the right ability to give and assign a task to another person. *Following instructions* is the opposite of delegation and means the ability to act as the team members discussed in advance. Feedback provides the transparency and the peer-to-peer development opportunity within a team. *Giving feedback* is the ability to communicate an opinion on someone's work in a professional manner, while *handling criticism* is the ability to receive, process and accept feedback professionally. Leadership is also key element of collaboration. Case solvers may inspire and get in to conflict with each other under pressure. *Inspiration* is the mental stimulation and motivation of others to act for the same goals and objectives, while *handling conflict* means keeping a constructive attitude in conflicting situations.

Skill	**Definition**
Delegation	Delegation is the assignment of any responsibility or authority to another person to carry out specific activities. The key to successful delegation is identifying what, how and to whom to delegate.
Following instructions	Accepting and owning tasks assigned by another person while maintaining the right balance between individuality and teamwork
Giving feedback	Ability to communicate opinions about other people's work constructively and at the right time in order to motivate them to develop further or maintain their current motivation and efficiency.
Handling criticism	Ability of a person to accept constructive criticisms for improvement and being able to withstand the pressure of unfair or dispiriting criticisms while motivating himself to work harder and better instead of giving up.
Inspiration	The process of helping others become mentally stimulated to do or feel something, especially to do something creative.
Handling conflicts	The process of limiting the negative aspects of conflict while increasing the positive aspects of conflict by keeping a constructive attitude and communicating effectively.

Table 4: Collaborate skills

Source: Own concept (2019)

Collaboration is essential to the fast changing educational and working environment and requires continuous adaptation to the newest digital technologies. The Collaborate skills are listed in Constellation 3 are not only crucial in case solving but have a relevance during the daily problem solving as individuals who are facing with challenges within the family and working team.

Constellation #4: Communicate your solution

The Communicate skill category includes 4 skills – *storylining, visuals, public speaking and non-verbal communication* – which are considered as essential part of communication skills in problem solving (see Table 5). Storylining and visual skills are used during the Solve and End phases of the CASE Model, while public speaking and non-verbal communication are important during the case presentation.

The first step of the Solve phase is the preparation of the storyboard. From this step the case solver team starts the preparation for the presentation. This preparation has two main aspects. Firstly, the team has to build a clear *storyline* through lining of messages in logical order to make the entire story easy to understand. Secondly the prepared slides should be *visually* client ready. This skill means that the visuals of the outputs are supporting the main message and makes the presentation content more understandable. To develop a well-structured storyline and visuals, the case solvers may use the SALSA model (Ábrahám et. al., 2018), which shows the main steps (Storyline, Action title, Layout, Supports, Adjust) of the slide design process. This model ensures that none of the essential parts, the content and visuals are missing when solving a case study.

Skill	Definition
Storylining	Lining of messages in logical order to make the entire story easy to grasp and understand while using only the relevant messages avoiding unnecessary noise.
Visuals	An item of illustrative matter, such as a film, slide, or model, designed to supplement written or spoken information so that it can be understood more easily
Public speaking	The sharing of information between individuals by using speech.
Nonverbal communication	Gestures, facial expressions, tone of voice, eye contact (or lack thereof), body language, posture, and other ways people can communicate without using language.

Table 5: Communication skills in the Skill Universe

Source: Own concept (2019)

During the presentation the team members should present the key findings of the case solving to an audience. Public speaking is about sharing information with the wider audience through a speech. Besides the verbal communication there is a non-verbal communicational aspect of the presentation. During the presentation the case solvers needs to act professionally and take care about their gestures, body language, eye contact etc.

MAIN CONCLUSIONS

Different applications of case method may bring new innovations in teaching and learning International Business. The case method can teach new concepts and develop the problem solving skills of students at the same time throughout its fundamentals. Students need to work on a real life challenge of a company and provide a comprehensive solution under time pressure. Students act as consultants and the instructors drive the discussion among the participants. The case study discussions and the case study competitions are innovative forms of experience-based peer-to-peer learning.

This paper aims to prove that the CASE model is applicable for different business problems in different education settings. Table 6 shows the model's applications in the three previously described – plenary case discussion, team-based case discussion and case competitions – situations.

Educational setting can determine the effective use of CASE model. Although the CASE model originally was developed as part of a Case Competition preparation program, it can be use in other educational settings as well. The CASE model does not count with the instructor's role, it assumes that the team can act as a unique entity and can make its own decisions without any external influence. In case of the – plenary and team-based – class room discussions, the course instructor is present and usually plays an active role to shape the interactions and learning outcomes. The available time is another important limitation of the classroom formats. The length of class room discussions varies between 45 to 120 minutes which does not allow detailed analysis and implementation to the course members. Although the output of the case solving exercise and the time spent in the different phases is changing, the model is applicable in any of the described educational settings.

Proposition #1: The CASE model as a problem solving framework is applicable during case study based classroom discussions and case competitions.

Phase	Plenary discussion	Team-based discussion	Case Competitions
Collect	Data collection is case study and course instructor based	Teams may use background knowledge, other open sources and information provided by course instructor	Teams may use any available and/or permitted sources to build a domain knowledge on the core situation
Analyze	Questions asked by the course instructors are lead the analysis	Analysis is made by the team or team members. Key findings of the analysis are presented to the class	The analysis is made by the team members and based on a problem tree. The key takeaways are part of the final presentation's storyline
Solve	Strategic directions and the evaluation criteria are discussed through the plenary session	The ideas and the strategic recommendations are briefly implemented by the teams on a flipchart	Strategic options are drawn-up through a solution tree and the evaluation criteria is established by the team members. The recommended solutions are deeply implemented in the final presentation
End	Conclusions & key takeaways are mentioned by the course instructor	Teams are pitching their ideas and takeaways to the whole class; Learning outcomes are summarized by the course instructor	Case solutions are presented through a PowerPoint presentation by the team and challenged via a Q&A session by the class and/or jury members

Table 6: Applications of CASE model in different educational settings
Source: Own concept (2019)

As the various business cases can be solved with the CASE model, the different applications of the case method can be reviewed and linked to the CASE SOLVERS' Skill Universe. Table 7 describes the relationship between three different educational settings and the problem solving skills introduced in CASE SOLVERS' Skill Universe:

Application form of case method	Developed skills
Plenary case discussion	*Create*: Students individually think about the main questions of the case study and the issues raised by the instructor during the case discussion *Conduct*: Only relevant during course preparation
Team-based case discussion	*Create*: Students needs to solve the case and make the necessary decisions in teams *Conduct*: As the case solving is more complex, the team needs to set the priorities and manage the stress as team. Due to the teamwork new type of disruption (e.g. different motivation of the members) may appear. *Collaborate*: Team members need to collaborate with each other, but the course instructor still has a significant role as a coach.
Case competitions	*Create*: The team solve the case under time pressure in a laboratory environment without any external help or support. The team has to build on the cognitive capabilities of individuals in the team. *Conduct*: Team needs to plan the available time to maximize team efficiency. This requires rigorous goal setting, prioritization, stress management and focus. *Collaborate*: Team needs to act as a team. The team members should inspire each others, handle conflict, delegate and follow instructions and give and accept feedback *Communicate*: Team needs to prepare a well-structured presentation and present the solution to a jury panel of professionals with various background

Table 7: Application of CASE SOLVERS' Skill Universe in different educational settings
Source: Own concept (2019)

Table 7 shows that the different application forms of the case method result in different complexities. As the complexity of case solving activity increases the number of skills and competencies are increasing. This means that the application format of the case method can determine the skills which may be developed.

Proposition #2: There is a universal problem solving skillset – the CASE SOLVERS' Skill Universe – which can be develop through CASE method in different educational settings.

This paper aimed to provide a detailed problem solving framework – CASE model -, which is applicable for various educational settings, and introduce a universal skill map – the CASE

SOLVERS' Skill Universe – which may be applicable for the different formats of case (and problem) solving. Testing the propositions outline above and deliver empirical evidences of them are the major development points for the future research.

The case method is an inter- and cross-disciplinary teaching method which can be used for the education of International Business. It links the different disciplines and contributes to the development of problem solving skills which are essential to serve the communities and the society. Case-based courses, workshops and case competitions act as platforms to trigger innovation and develop innovative competencies of talents for the 21st century International Business education.

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