THE IDEAL TRANSFORMATIONS AND THE REAL TRANSFORMATIONS: USING VALUE-FOCUSED THINKING TO ASSIST SOFT SYSTEMS METHODOLOGY TRANSFORMATIONS SELECTION

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ABSTRACT

Soft Systems Methodology (SSM) is one of the best known and most effective Problem Structuring Methods (PSM) for tackling problematic situations. When making interventions using the SSM and with the participation of stakeholders, undesirable states show up that demand transformations to turn into more desirable states. However, too many transformations can be identified, which makes necessary to prioritize some of them. This paper explores how objectives based on stakeholder values can prioritize transformations in alignment with these objectives and thus guide the planning of actions in a problematic situation. For this purpose, Value-Focused Thinking (VFT), an approach designed to obtain and structure value-based objectives, was used as an additional step to SSM. The resulting multi-methodology is applied to a Brazilian educational planning process focused on structuring and defining policies and practices for the inclusion of students with Specific Educational Needs (SEN). The application of multi-methodology has resulted in over 40 transformations as identified by the SSM, of which only 12 were consistent with the stated objectives. The results suggest that it is possible to save time and effort in the planning process and generate more efficient systemic plans.

KEYWORDS: Soft Systems Methodology - Value-Focused Thinking- Multimethodology - Problem Structuring Methods.

RESUMEN

Soft Systems Methodology (SSM) es uno de los métodos de estructuración de problemas (PSM) más conocidos y eficaces para tratar situaciones problemáticas. En las intervenciones, utilizando el SSM y con la participación de los interesados, surgen estados no deseados que requieren transformaciones para pasar a estados deseados. Sin embargo, en la práctica se pueden identificar muchas transformaciones y es necesario priorizar algunas de ellas. En este trabajo es analizada la forma en que los objetivos

basados en los valores de las partes interesadas pueden dar prioridad a las transformaciones en consonancia con esos objetivos y orientar así la planificación de las acciones en una situación problemática. Para ello se utilizó el Value Focused Thinking (VFT), un enfoque diseñado para obtener y estructurar objetivos basados en valores, como un paso adicional a la intervención basada en el SSM. La multimetodología resultante se aplicó a un proceso de planeamiento educativo brasileño centrado en la estructuración y definición de políticas y prácticas para la inclusión de estudiantes con necesidades educativas específicas (NEE). La aplicación de la multimetodología resultó en más de 40 transformaciones reveladas por el SSM de las cuales sólo 12 se han alineado con los objetivos identificados. Los resultados sugieren que es posible ahorrar tiempo y esfuerzo en el proceso de planeamiento y desarrollar planes sistémicos más eficientes.

PALABRAS CLAVE: Soft Systems Methodology - Value-Focused Thinking – Multimethodology - Problem Structuring Methods.

1. INTRODUCTION

Identifying, moulding, articulating and understanding objectives with clarity are fundamental steps to any and every operational research study (Eden and Ackermann, 2013). However, in many problematic situations, objectives may be hard to achieve. Problem Structuring Methods (PSMs) are approaches to deal with problems with no clearly set objectives, resources and constraints (Rosenhead and Mingers 2001; Kotiadis and Mingers, 2014). Soft Systems Methodology (SSM) and Value-Focused Thinking (VFT) are two of the most traditional and well-known PSM (Ormerod, 2014; Ackermann, Franco, Rouwette and White, 2014, Keisler, Turcotte, Drew and Johnson, 2014)

SSM focus on developing transformations to convert an undesirable state into a desirable state (Georgiou, 2006, 2008, 2012, 2015). However, many transformations may be uncovered that imply a true challenge to design an effective planning. Notwithstanding the value-based objectives could be used to identify the most relevant transformations. By using VFT to reveal and structure objectives, we can use our values to develop a systemic planning more efficiently and save effort by performing only the transformations that help us reach the fundamental objectives.

SSM is a framework used to structure problems, based on their understanding, and to design the necessary actions to perform the transformations (Georgiou, 2012). Usually SSM can be combined with other PSMs (Munro and Mingers, 2002; Howick and Ackermann, 2011). However, although it is very important to know the goals to any problematic situation, it is unusual to see approaches that focused on this issue in the literature. A combination VFT+SSM can be seen in a few papers (Neves, Dias, Antunes and Martins, 2009; Teles and Sousa, 2014; Bernardo, Gaspar and Antunes, 2018), in which the authors use SSM to generate a cloud of goals and VFT to

structure them. A multimethodological approach combining VFT with SSM can be very efficient in developing and improving a systemic planning.

During an intervention based on SSM many transformations can be raised which makes it necessary to prioritize some. The paper aims to show how VFT can be used within the systemic planning stage of SSM to prioritize and identify the most relevant transformations for the problematic situation and help design their Human Activity Systems (HAS). The main contribution is including VFT as additional stage on SSM based intervention. The proposed approach is applied in a Federal High School to structure and define policies and practices for the inclusion of students with Special Educational Needs (SEN).

The paper is organized as follows: The first section introduces the issue and the purpose of the study. Sections 2-4 highlight a brief review of the literature about SSM, VFT and VFT-SSM combination in the relevant literature. Section 5 presents the framework we propose to deal with the situation. Section 6 includes an application in the form of a case study. In the section 7 the conclusions are presented.

2. SOFT SYSTEMS METHODOLOGY (SSM)

The SSM was introduced by Checkland (1981) and many SSM's configurations are performed for almost four decades of development (Checkland, 2000). The original formulation has seven stages, starting from a rich picture, stakeholder's analysis and the design of a set of Human Activity System (HAS) called Supersystem. A didactic three-stage of SSM (Georgiou, 2015), used in this study, share aspects from the original formulation, starting with a Rich Picture, then identify and describe stakeholders, afterwards catch transformations, design conceptual models and establish control criteria.

The three-phased SSM (Georgiou, 2015), hereby called simply SSM, group all procedures in order to answer three questions (Georgiou, 2006). 1 - Given a sparse knowledge of a problematic situation, how is it possible to extract information from it?; 2 - If such information can indeed be extracted, how can it be structured in a way which enables rigorous problem definition?; and 3 - If a problem can indeed be defined rigorously, how can this definition be used to inform a systemic approach toward resolution? (Georgiou, 2006, p. 441). An overview of SSM is shown in FIGURE 1.

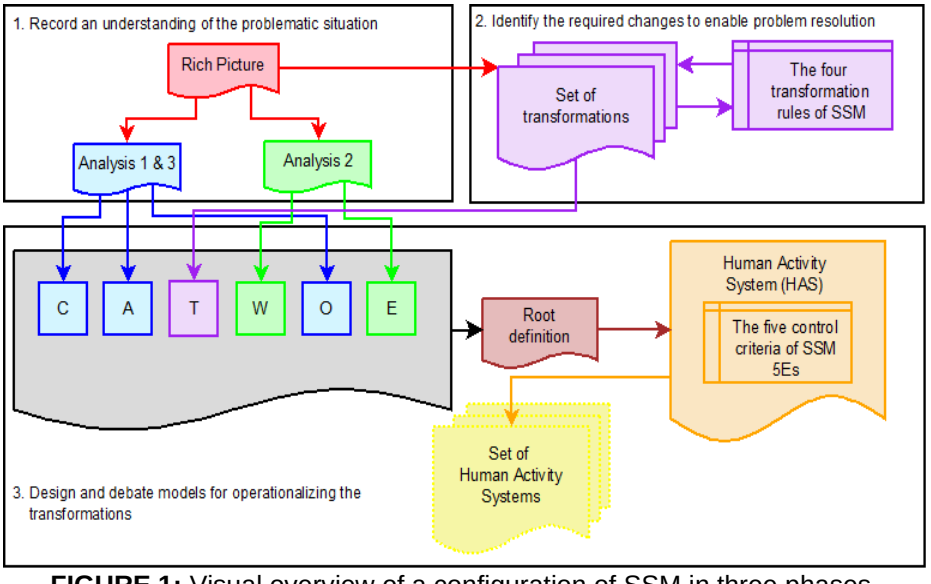

FIGURE 1: Visual overview of a configuration of SSM in three phases. adapted from Georgiou (2015)

The first phase is concerned to record an understanding of the problematic situation. It consists in producing, as much as possible, given a problematic situation, with lack of clear facts, whatever knowledge and converting it in useful information. The pieces of information are produced with the Rich Picture, a free-form diagrammatic description about the problematic situation under study. Analysis 1, 2 and 3 are focused on the people related. Analysis 1 lists all the people that are involved in the situation and Analysis 3 describes the power of intervention that each one has. Analysis 2 is focused on immersive questions like “What is it like to be in this situation?” “How are things done here?” “What sort of culture, organizational or otherwise, permeates this situation and, to a great extent, governs it?” (Georgiou, 2015, p. 423).

The second phase uses the information produced to identify the required changes. This implies getting an undesirable state in the problematic situation that needs to be transformed into a desirable state. To get those transformations, SSM stipulates four rules that must be followed:

1 – Consider only one input and one output;
2 – The input must be present in the output in a changed state;
3 – An abstract/intangible input must yield an abstract/intangible output and;
4 – A concrete/tangible input must yield a concrete/tangible output.

A sample of transformations could be: “Unacceptable time lag in dealing with urgent demand” as input and “Acceptable time lag in dealing with urgent demand” as output (Georgiou, 2015).

The third phase starts by contextualizing each transformation by means of mnemonic CATWOE. In CATWOE, a Customer (C) is the one who

will benefit or lose when the transformation is performed. The Actor (A) is the one who will do the Transformation (T) and the Owner (O) delegates the work to be done and who will do it. The Environment (E) is the constraint related with the transformations under consideration. Finally, Weltanschauung (W) is a German expression understood as world-view, the reason, perspective or a justification for the transformation.

The terms of CATWOE are grouped in one expression called Root Definition, that provides answers for questions like: “What are you planning for?”. A general sample for root definition could be: A system that does (T), for (C), realized by (A), due to (W), under command of (O) and limited by (E).

The last step is building HAS, a set of linked activities that perform each transformation. At end, all the individual HAS are interlinked with each other thus originating a truly systemic plan called *supersystem*.

Control criteria are added to monitor the supersystem. Based on Checkland (1999, 2000), Yolles (1999) and Georgiou (2006), it is essential to answer some questions, in our case three: Efficacy, Efficiency and Effectiveness.

Related to Efficacy, that focused on the processes and their output and check if the means work. Efficiency: if the minimum resources are used, related to the use of resources; and Effectiveness focused on the strategy, if the transformation contributes to the attainment of the owners’ goals and expectations.

3. VALUE FOCUSED THINKING (VFT)

The Value Focused Thinking was developed by Keeney and described in his book, many of his papers and other authors, mostly in institutes in the USA (Parnell et al, 2013). VFT is used in many areas such as governmental, energy, production and others (Parnell et al, 2013). It consists in a set of tools and techniques to identify and structure value based goals by means of stakeholders’ interview (Kunz, Siebert and Mütterlein, 2016). When goals are clearly defined, more and better alternatives and even criteria to evaluate them may be set (Siebert and Keeney, 2015).

VFT can be summed up in four steps (Sheng, Siau and Nah, 2010; Tuhkala, Isomäki, Hartikainen, Cristea and Alessandrini, 2017). The first one consists in generating a wish list, by asking, “What do you want? What should you want? What do you mean?” and other questions about the problematic situation. In the second step the values are converted into measurable objectives. In the third step, through the WITI (Why Is This Important?) test, the goals are arranged in a priority or dependency order, and distinguished into fundamental objectives, the end that decision-makers value in a specific context, or means objectives to achieve specific ends. Finally, in the fourth step the means-end network objectives is designed (Keeney, 1992, 1996).

The VFT practice in a specific context of problematic situation might result in many benefits, such as enabling more and better alternatives to tackle the issue that would not be considered for the first time. Therefore, decision-makers might spend more effort towards decisions with more desirable

consequences (Alencar, Priori Jr and Alencar, 2017). The identification of value-based objectives help to generate actions and get results in accordance with the decision makers' expectancy (Keeney, 1992; Argyris and Schön, 1996). The literature shows that VFT is widely used with MCDA (Multi Criteria Decision Analysis) methods such as AHP, MACBETH (Marttunen, Lienert and Belton, 2017).

4. THE LITERATURE ON THE VFT-SSM COMBINATION

Although both VFT and SSM have been well-consolidated approaches for almost 30 years, not many studies combine them together. Studies from Neves, Dias, Antunes and Martins (2009), Teles and Sousa (2014), Kamari, Corrao and Kirkegaard (2017) and Bernardo, Gaspar and Antunes. (2018) use SSM to generate a cloud of objectives and VFT to structure it. In Abuabara, Paucar-Caceres and Burrowes-Cromwell (2019) and Abuabara, Paucar-Caceres, Belderrain and Burrowes-Cromwell (2018) the authors uses the Rich Picture, part of SSM, with SSM. These studies, detailed in TABLE 1, combine VFT and SSM.

TABLE 1: References concerning VFT+SSM applications

Authors	Analysis Context	Objective
Abuabara, Paucar-Caceres and Burrowes-Cromwell. (2019)	Circular economy through coffee capsule consumption	Support business decision-making by adopting a systemic intervention from the consumer viewpoint
Bernardo, Gaspar and Antunes. (2018)	Energy management in school buildings.	Elicit and organize the multiple aspects that influence energy efficiency of school buildings.
Abuabara, Paucar-Caceres, Belderrain and Burrowes-Cromwell. (2018)	An aviation manufacturer Brazilian company case	Debate issues regarding the different views of stakeholders about to how to re-design the company strategy and how to implement and to monitor it.
Kamari, Corrao and Kirkegaard. (2017)	Building renovation sustainability	Develop a sustainability framework to audit, develop and assess building renovation performance, and support decision-making during the project's lifecycle.
Teles and Sousa. (2014)	Manage corporate environmental performance.	Provide a methodology or framework to support and evaluate corporate environmental strategies and management approaches.
Neves, Dias, Antunes and Martins. (2009)	Energy efficiency initiatives	SSM and VFT were used to elicit and structure, respectively, objectives to be used in MCDA models for evaluating EE initiatives.

The VFT's major ability, thinking about values, is not considering in the studies shown in TABLE 1. Contrary to the literature on the VFT-SSM combination, this paper shows how VFT can be applied beyond that described by the literature to date. VFT could be used to prioritize transformations and guide systemic planning envisaged in SSM.

Considering that identifying, structuring and articulating objectives are fundamental in any operational research study, joining VFT and SSM can

bring many benefits in an intervention, such as more efficiency and effectiveness.

5. STRUCTURED SYSTEMIC PLANNING USING VALUE-BASED GOALS

PSMs, like SSM, were developed to deal with unstructured or ill-defined problem situation with multiple actors, with potentially conflicting values or interests, reliable data, differing perspectives, perplexing uncertainties and significant intangibles (Rosenhead, 2006). SSM tackles these characteristics by improving the situation as a whole. However, there are two gaps associated to SSM. Firstly, it does not have focus on goals, neither has a tool to get them, but when there are not many transformations, this point is not a true problem, once it is not necessary to pose too much effort to improving the entire issue under consideration. Secondly and a true problem, when there are many transformations, it can be very hard to implement all of them, so it is necessary to prioritize some of them.

The second gap was identified by Georgiou (2012). The author structured the transformations in a SODA map called SODA-Transformations or simply SODA-T. The input and output of transformations fill two poles of each construct. The author suggests that some transformations have more influence in the systemic plan and thus could be prioritized. Alternatively, we propose that transformations that meet fundamental objectives, in this case value-based objectives, must be prioritized. Then, our framework begins by identifying the actual state from situation or “what we get”, then disclose the goals or “what we want” and finally prepare a systemic plan that enables to move from what we get to what we want.

In short, stage 1 includes Georgiou’s (2015) SSM first phase that involve the draw of the Rich Picture and describe the involved people with Analysis 1, 2 and 3 (Georgiou, 2006). Stage 2 is composed of the Keeney’s (1992) VFT procedures. Start by getting a value list by means of interviews with stakeholders. Then we transform the values into measurable and tangible goals, rank them and finally establish network goals with some diagrammatic software tool. This task could help us to build HAS in the next stage. The final stage includes the second and third SSM phases. A detailed summary of the framework proposed is shown in TABLE 2.

TABLE 2: Steps of proposed framework

Stage 1: What do we get?	**Tool**
Step 1.1: Abstracting the context of the problematic situation;	Rich Picture
Step 1.2: Identifying and describing the related actors;	Analysis 1 and 3
Step 1.3: Describing the context of the problematic situation;	Analysis two
Step 1.4: Building and analyzing the SODA map;	SODA map
Stage 2: What do we want?	
Step 2.1: Setting values;	Wish List
Step 2.2: Transforming values into goals;	Verb+Object
Step 2.3: Ranking goals	WITI Test
Step 2.4: Building means-end network goals	Software
Stage 3: How do we move from 1 to 2?	
Step 3.1: Identifying transformations.	Transformation Rules CATWOE
Step 3.2: Contextualizing transformations;	Root Definition
Step 3.3: Describing transformations;	HAS, and 3 E’s

Step 3.4: Setting and interlinking activities and setting up control criteria to conceptual models;

In stage 3, after identifying the transformations, we can prioritize some transformations by looking at the network goals and asking, “Does this transformation help us to meet our fundamental objectives?” If the answer to this question is yes, we then ask, “Which goals are achieved with this transformation?” We thus save effort in the next steps, which is one of the benefits of using VFT.

There are a lot of required transformations; but only a few transformations meet all goals and a little amount meets most of the goals.

There are many structured objectives in the means-end network objectives, but some are more significant than others. Fundamental objectives are those at end of network, whereas means objectives are those with links to another (more fundamental) objective (Keeney, 1992). FIGURE 2 shows a simple sample of VFT means-end network.

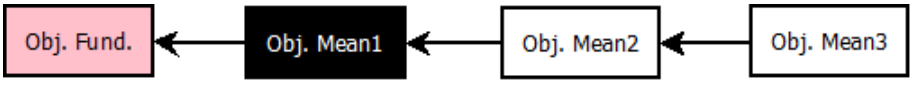

FIGURE 2: VFT means-end network sample

The first goal is called Fundamental, or what we want at the end of the process. Thus, we have to seek for these goals when we select the transformations. The means objectives 1, 2 and 3 are what we must do to reach the fundamental one. Obj. Mean1 is the last goal before the fundamental. To reach Obj. Mean1 we need to do Obj. Mean2 and Obj. Mean3. These mean objectives could help us to think about the activity list that composes individual HAS and supersystem.

Each transformation was labeled with the identification of the fundamental objective to reach. When some transformations could not be related to any of these goals, we labeled it with “-”. Among the transformations not labeled with -, we selected all of them or some of them that are related to as many goals as possible, and perform the HAS. For each HAS, we identify the control criteria of 3 E’s (Efficacy, Efficiency and Effectiveness). The inclusion of control criteria enables to measure if the activities achieve their desired outcome. The last step is grouping the individual HAS in a supersystem and placing the control criteria for the supersystem too. The last step enables the plan to be truly systemic.

In the next section, we present the application of our framework in a case-study related to inclusion and school attendance by students with Special Educational Needs (SEN).

6. A CASE-STUDY WITH THE APPLICATION OF VFT-SSM

Education for students with SEN in regular schools is a global agenda (Runswick-Cole, 2011) promoted by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and many other organizations. The most

important document on this subject is the Salamanca Statement in 1994 (Unesco, 1994), by means of which the United Nations members committed to include these students in the same schools as the others. This commitment involved many issues about how to carry out the inclusion.

Barton and Corbett (1993) advocates that the policies built must consider contextual aspects in the institutional reality and immersion. Ferguson (2008) claims the need for a movement to change from traditional education to the collective construction of knowledge, in a way that it is closer to what happens in society. Lindqvist and Nilholm (2014) highlight the influence of the head teachers, although there are many global and local policies, and the implementation is according to the context, values, insights and beliefs of related people. In other words, the inclusion of students with SEN has features with which PSM can deal as multiple actors, uncertainties, contextual aspects, etc.

Notwithstanding, education has many levels, from child education to post graduate and professional formation. Our case study consists in a unit of the Federal High School with students with and without SEN.

6.1 What do we get?

The first stage was identifying what we get, our current state. We started by drawing a Rich Picture with a principal involved. The Rich Picture gave clues about significant issues and potential stakeholders. FIGURE 3 shows the Rich Picture.

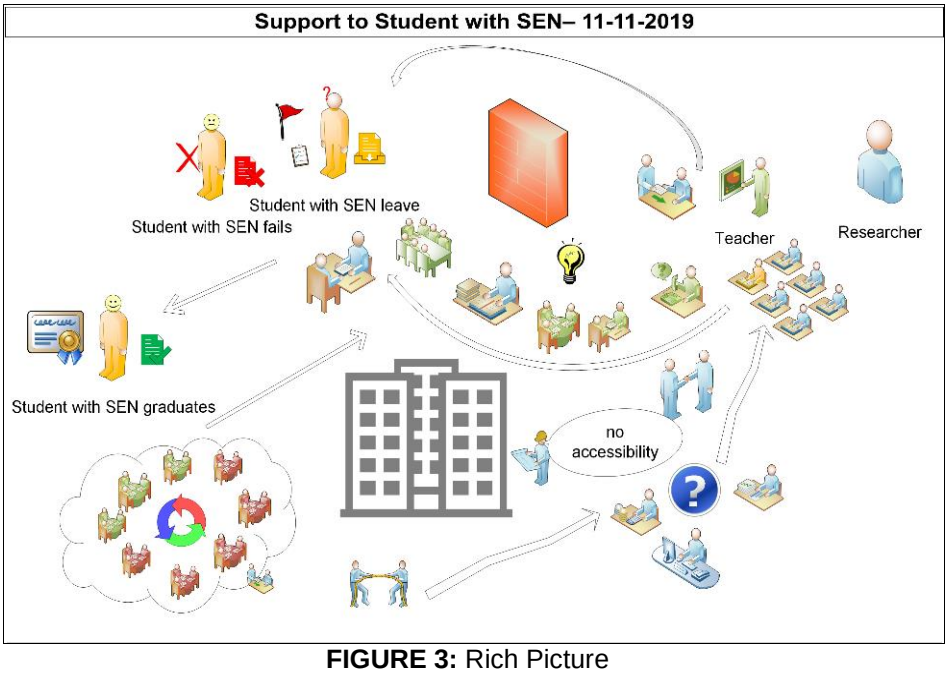

FIGURE 3: Rich Picture

The rich picture guided the debate with the director and allowed three stakeholders to be selected for interviews: a general coordinator of the inclusion area and two teachers who have experience with inclusion.

Some related aspects included: new policies that ensure the reservation of students with SEN. In previous schools, these students were compulsorily approved and had a lot of difficult; many teachers do not see these students as capable and think that they should not be there; the nature of the school pursuits to promote social transformations and meet all kinds of people in society. Currently, there are some SEN students and the total is increasing year after year. It is expected that the number will rise due to the new policies of inclusion.

To understand the procedures to deal with these students and after understanding what they want, interviews were conducted with stakeholders. The questions are shown in the list below. Other questions were asked during the interview according to the needs of the facilitator.

- What are the values and goals from the school?
- Why is it important for the student to have a department at their disposal?
- Currently, what are the procedures regarding the SEN student?
- Even if hypothetical, what do you consider as the best environment for achieving the goals?

The interview exposed values, goals and procedures related to the service offered to SEN students.

6.2 What do we want?

This stage consists in identifying and structuring mean and fundamental objectives to guide the transformations and help build the conceptual models. From the transcriptions of the interview, some values were identified: Attention for all students, wish for an inclusive school and society, adapted environment, qualified staff, resources, etc. A new round with the stakeholders enabled to transform the values into measurable and tangible goals and apply the WITI test. Finally, the objectives were put in a hierarchy. The results are shown in TABLE 3.

TABLE 3: Objectives Hierarchy

1.	**Graduate innovative and responsible professionals**
	1.1. Increase graduate students
	1.1.1. Reduce school failure
	1.1.2. Reduce evasion
	1.2. Improve social inclusion
	1.2.1. Fulfill the legislation
	1.2.2. Ensure the students' rights
2.	**Induce social, local and regional development**
	2.1. Compose infrastructure
	2.1.1. Compose a multifunctional room
	2.1.2. Hire specialized professionals
	2.2. Improve social inclusion

	2.2.1. Fulfill legislation
	2.2.2. Ensure students' rights
3.	**Ensure equity, ethic, quality entrepreneurship and innovation**
	3.1. Identify demands
	3.1.1. Identify students' potentials
	3.1.2. Identify students' limitations
	3.2. Improve knowledge of the people involved
	3.2.1. Offer training to the people involved
	3.2.2. Give support to teachers

Five fundamental objectives are identified that were labeled from one to five and listed here:

1. Maximize graduated students
2. Improve social inclusion
3. Compose adequate infrastructure
4. Identify demands
5. Improve knowledge of the people involved

Through more interviews and using WITI test, the objectives hierarchy was increased with more previous objectives that needed to be reached to perform the fundamental objectives. FIGURE 4 shows a full interlinked means-end network objective.

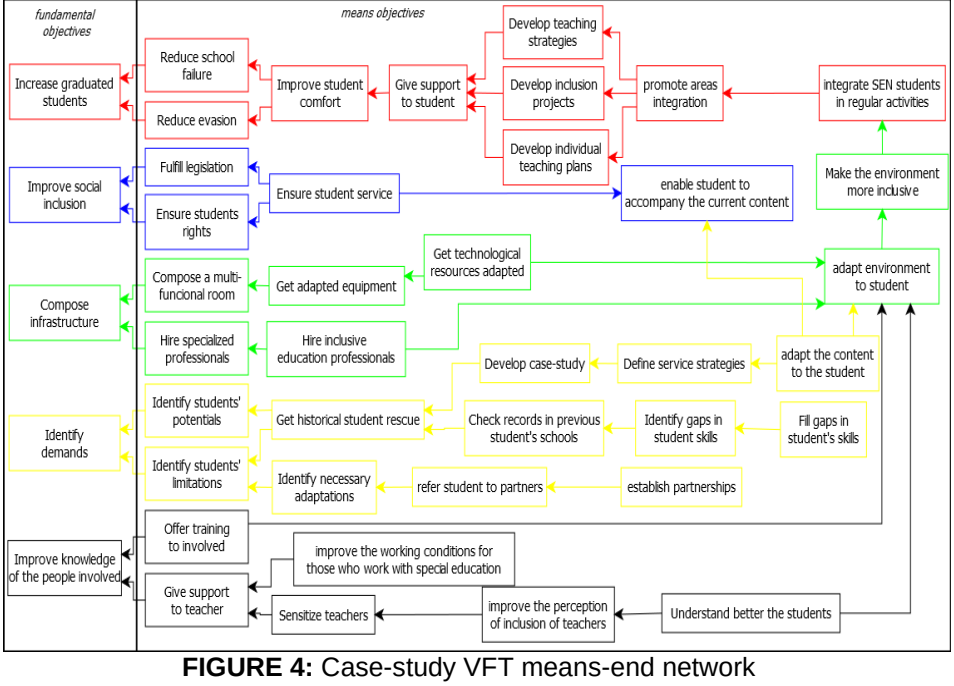

FIGURE 4: Case-study VFT means-end network

The necessary transformations are those that help to reach the list of fundamental objectives. The others mean objectives will be used to help build each HAS of the selected transformations.

6.3 How to get from what we get to what we want?

Through stakeholders' discussions, 40 undesirable states that needed to be transformed into desirable states were get. When faced with the five fundamental objectives, they marked which objective the transformation would help reaches remaining 12 transformations. Three transformations (19, 20 and 21) help to reach two out of five goals (1 and 2). We focused on three transformations shown in TABLE 4.

TABLE 4: Transformations aligned with the value-based goals

Id	Transformation	Objective
19	Lack of empathy with inclusive education. People involved more aware of the theme	2
20	Student systematically fails. Student advances the steps of the course	1
21	Student has difficulty understanding content. Student overcomes difficulties and progresses	1

Firstly, we needed to contextualize these transformations and we could do it with CATWOE and Root Definition. TABLES 5, 6 and 7 show CATWOE embedded into Root Definition highlighted by each member letter that composed it.

TABLE 5: Root Definition to Transformation T_{19}

Transformation	Input	Output
T_{19}	Lack of empathy with inclusive education	People involved more aware of the theme
Root Definition	A system that does the T: People involved more aware of the theme, for C: general teachers, realized by A: NAPNE members', due to W: Inform about the target audience and legal obligations, under command of O: general management and limited by E: an environment where there are pre-established cultural barriers.	

TABLE 6: Root Definition to Transformation T_{20}

Transformation	Input	Output
T_{20}	Student systematically fails	Student advances the steps of the course
Root Definition	A system that helps T: advances the steps of the course, for C: SEN's students, realized by A: teachers and NAPNE's members, due to W: Adjust curriculum activities to students' specificities, under command of O: general management and limited by E: an environment where there are an inflexible curricular program.	

TABLE 7: Root Definition to Transformation T_{21}

Transformation	Input	Output
T_{21}	Student has difficulty understanding content	Student overcomes difficulties and progresses
Root Definition	A system that helps T: overcomes difficulties and progresses, for C: SEN's students, realized by A: teachers and NAPNE's members, due to W: Adjust the education plan to the specificities of the students, under command of O: pedagogical principal and limited by E: an environment where there are no resources room and adapted materials	

To perform each transformation, through discussions with stakeholders, some activities were raised, labeled with transformation number plus a dot and a sequential value and finally then interlinked into an individual HAS.

Following Georgiou's (2006) guidelines, the individual HAS are built and merged into one supersystem. The last step is to place the control criteria. Following the perspectives from the stakeholders, the control criteria are defined as: Efficacy: Training that addresses the real needs of the students with SEN and their teachers; Efficiency: Selected teachers who serve as many students as possible with SEN and; Effectiveness: Adopted instruments used in the teaching practices. FIGURE 5 shows the supersystem.

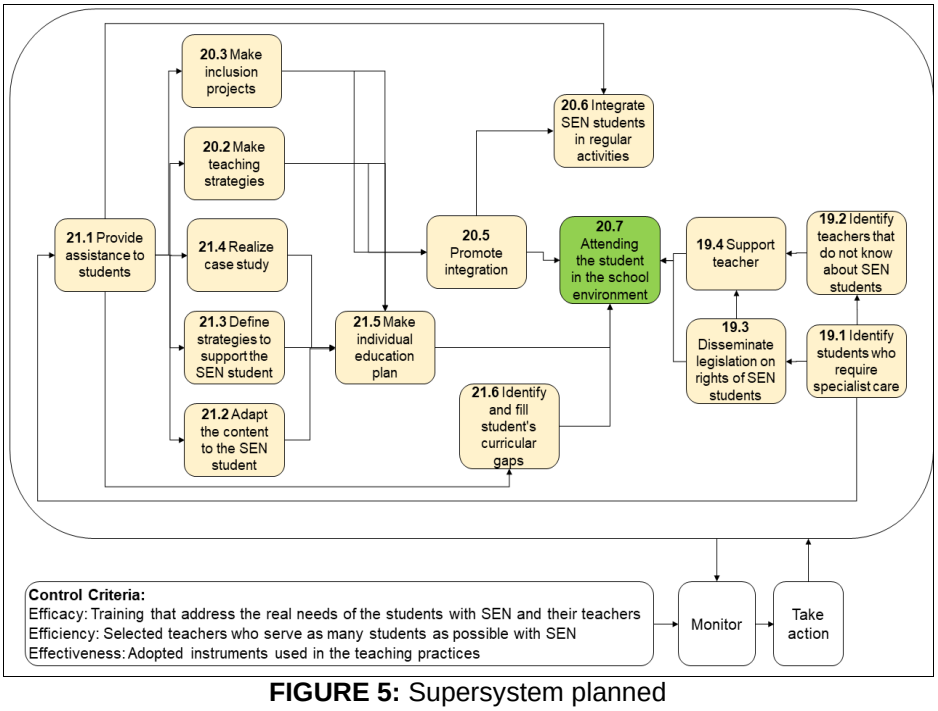

FIGURE 5: Supersystem planned

The supersystem has 15 activities that, in the view of the stakeholders, must be performed in order to carry out the selected transformations. The activities 19.1: Identify students who require specialist care and 21.1: Provide assistance to students are those that start the plan. The final activity is 20.7: Attending the student in the school environment. This means that the end of intervention expects to attend the SEN's students as well the others.

The activities in the supersystem reveal the stakeholders' concern with data generation regarding demands, content adaptation and support to teachers as a means to promote inclusion in the institution.

Following this plan might help to reach the goals of increasing graduate students and improving social inclusion. After meeting these two goals, it is possible to reach one of the three fundamental goals “graduate innovative and responsible professionals”. When focused on value-based goals, time was saved by planning only the actions that may help reach them. Besides, the plan may become more aligned with the expectations of those involved. There are many other transformations. Some are easier to plan, but do not contribute to meeting the real goals.

7. CONCLUSIONS

In this study, by assuming that the principle that identifies, articulates and understands the goals is a fundamental step in any and every soft OR intervention, we proposed a multimethodology composed by VFT and SSM. The paper offers a brief introduction to VFT, SSM and how both methodologies are used. Despite SSM has been developed ever since the 1970s and VFT since 1992, a combination has been missing in the literature in the way used in this case. The most traditional configuration of SSM is the seven-stage, which was the first formal configuration widely published, although other versions of SSM have been placed by Checkland, with two streams and four main activities. Less known in literature, the three-phased SSM configured by Georgiou gives a more didactic configuration, hence we encourage its adoption in a real-world problematic situation as the one addressed in this paper: the inclusion of students with SEN.

The configuration of SSM adopted, like others SSM configurations, focus is on making an undesirable state into a more desirable one. The SSM is an open methodology, without defined limits and is not value oriented. This feature makes the SSM very flexible and comprehensive, however better results can be achieved by guiding the application of the SSM through objectives. The VFT enables extracting the values that actually govern the stakeholders’ actions or what they really want. Using stakeholder’s values, all previous procedures can be erased or changed, and VFT helps to think about this.

In this study, VFT was used together with SSM to guide strategic thinking in order to identify value-based objectives to select priorities transformations and help to reach it. As stated in the introduction, the main contribution is including VFT as additional stage on SSM based intervention. This combination resulted in an enhanced multimethodological approach that can improve, become more efficient and facilitate the systemic planning of solving problematic situations.

In our case study, many transformations were identified to improve the problematic situation under consideration, but few really are related to true objectives, in other words, with what stakeholders really want. The task of planning and implement all transformations could be very hard and discouraging. Since the VFT extracts the values that actually govern the stakeholders’ actions or that they really want, then some transformations were selected and planned, its implementation helped to identify and execute partial improvements rather than a global solution.

Just as the SSM aims to bring about transformations, we believe that studies such as the one presented in this document can contribute to "transform" society from its current non-inclusive state to a more inclusive, humane and welcoming state for all.

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