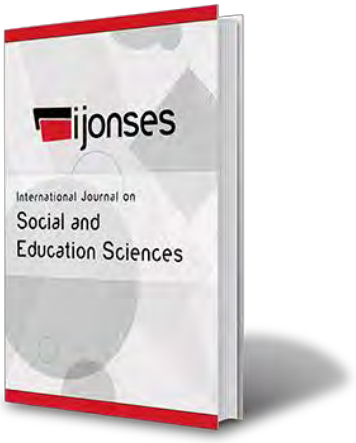

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Inclusive Education as A Wicked Problem: Introducing Systemic and Service Design Approach to Tackle the Challenge

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Inclusive Education as A Wicked Problem: Introducing Systemic and Service Design Approach to Tackle the Challenge

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Abstract

Inclusiveness is a principle of our current school system. Inclusive education should ensure equal learning opportunities for all, avoid stigmatising differences, and accept diversity in pupils. The goals are promising, but the implementation of inclusive education is a wicked problem intertwined with student, teacher, school community and wider societal factors that are difficult to manage and reconcile. Can the goals of inclusive education to be achieved or will inclusiveness of schools lead to a situation where the conditions for learning, school practices and teaching resources are further stretched and learning for all becomes more narrowly focused? This article examines inclusive education as a wicked problem and how this perspective can aid in managing the inclusive education challenge at hand and how systemic design approach and service design can tackle these challenges. There will be provided four practical challenges where the proposed approaches and tools can be especially useful.

Introduction

Both in Finland, Europe and many countries in the world has modified the basic education system to comply with the principle of inclusive education as set out in the Salamanca Statement (UNESCO, 1994). The agreement was signed by government representatives of 92 countries (Lindsay, 2003). According to this principle, all learners of different backgrounds are primarily educated in their local school, in ordinary primary schools, where each should be guaranteed an adequate support. Schools are no longer segregated, but act as centres of excellence for inclusion (Ministry of Education, 2007).Inclusive education in Finland has followed the same evolutionary path of special education as in many other countries in Europe and all over the world (Shepherd & West 2016). In Finland, inclusive education has been preceded by the era of sensory impairment institutions in the late 19th century, special schools and classes in the early 20th century and part-time special education from the 1940s onwards (Kivirauma, Klemelä & Rinne, 2006). In an inclusive school, each pupil's education is planned and delivered individually in the school where he or she lives, in the same group as their peers. In Finland inclusive education is the official educational policy, and the goal is that one school should be suitable for all pupils (Takala, 2007). In practice, inclusive education means teaching in a diverse classroom with pupils who have various individual needs (Anonymous 1, Anonymous 2, Author 1, 2018). Research on the implementation of inclusive education has been done in different parts of the world and on different continents North America (Hymel & Katz, 2019), Spain (Orozco & Moriña, 2023), Australia, Canada, England, New Zealand and US (Armstrong, 2018), China (Deng,

& Poon-McBrayer, 2004), Africa (Pather, 2019), in Brazil (Capellini & Germano, 2015; Ansay ,2010) and Canada (McCrimmon, 2015).

One might ask how to make inclusive education a success. It involves numerous challenges in practical teaching, classroom work, curricula and the school community (Golder, Norwich & Bayliss, 2005). Inclusive education (IE) is a wicked and complex problem (Armstrong, 2018; Qvortrup & Qvortrup, 2018). Van Mieghem, Verschueren, Petry and Struyf (2020) state that evaluations of Inclusive Education (IE) are based on five themes: attitudes towards IE, teachers' professional development in IE, IE practices, student participation and critical reflections on IE research. Tackling IE in the school system is not easy, given the needs of diverse learners, the training, resources and collaboration opportunities available to teachers, and the demands of curricula. Due to numerous factors, inclusive practice is often more complex than straightforward (Roose et al., 2022). In this article we use the terms inclusion, inclusiveness and inclusive education as interchangeably as a wicked problem throughout the manuscript. Wicked problems are challenges that are impossible to solve, but could be tamed (Rittel & Webber, 1973). Other wicked problems could be global warming, immigration integration, or obesity to name a few.

The purpose of this article is to examine inclusive education according to the Systemic Design approach (Design Council, 2021) and service design that is a user-centric and co-creational approach (Stickdorn et al., 2011). Systemic Design Approach is a malleable process or method that can be adapted to different occasions, problems, or challenges. The model starts with discovering the problem or the challenge by creating empathy. Afterwards, insights are refined by defining a point of focus often described as design brief. This is the first diamond where opening and closing the data occurs and is also known as the divergent and convergent phase. Normally, a design brief is made or redefined after this phase, since the team would have a better understanding of the task at hand. The second diamond is often smaller, since it focuses on developing ideas based on the information gathered during the first diamond from a systemic angle. Finally, potential “solutions” are created, prototyped and somehow catalysed forward. Although the two diamonds and the process are illustrated from left to right, in practice, the process is not so linear as there are iterations in between and inside the diamonds (Design Council, 2021).

The systemic design framework developed by Design Council is specifically designed to help designers working on major complex challenges that involve people across different disciplines and sectors (Design Council, 2021). The framework places people and the planet at the heart of design. Framework has six principles: 1) people and planet-centred, 2) zooming in and out, 3) testing and growing ideas, 4) inclusive and welcoming difference, 5) collaborating and connecting and 6) circular and regenerative. The framework includes four key roles for designers to play when tackling systemic issues: 1) system thinker, 2) leader and storyteller, 3) designer and maker, and 4) connector and convenor (Design Council, 2021).

This is a theoretical publication where our aim is to look at the IE as a wicked problem and to understand how the recent Systemic Design Approach can be used to tackle the challenge. In this manner the publication asks:

1. How can inclusive education be seen as a wicked problem?
2. How service design via systemic design approach can be used to design interventions in the context of

inclusive education?

This conceptual article defines inclusive education and then how it is a wicked problem. We will also open up how service design via the use of systemic approach could be a way to have an angle that is able to create some interventions by embracing the complexity at hand. In service design, services are developed with "users" or the stakeholders, and they are actively involved in the co-design or participatory design processes. Service design with systemic design approach offers various methods and tools for collaborative development work. Later in the article we will look more closely at four different challenges where the proposed approaches and tools can be applied.

Literature Review

What is Inclusive Education (IE)?

There are several definitions of inclusive education. The definitions vary depending on what inclusion is intended to emphasise (Krischler, Powell & Pit-Ten Cate, 2019). The focus may be on a student-centred curriculum that needs to consider the learning opportunities, demands and progression of different learners. Inclusion in educational practice also creates specific objectives and conditions for teachers' work, teaching methods and delivery. The whole school environment, parents, school administration and management will be placed in a new light. McGuire, Scott and Shaw (2006, p. 170) describe the nature of inclusive education as follows:

> "1. Equitable use: Instruction is designed to be useful to and accessible by people with diverse abilities.
> 2. Flexibility in use: Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.
> 3. Simple and intuitive: Instruction is designed in a straightforward and predictable manner, regardless of the student's experience, knowledge, language skills or current concentration level. Eliminate unnecessary complexity.
> 4. Perceptible information: Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student's sensory abilities.
> 5. Tolerance for error: Instruction anticipates variation in individual student learning pace and prerequisite skills.
> 6. Low physical effort: Instruction is designed to minimise non-essential physical effort in order to allow maximum attention to learning.
> 7. Size and space for approach and use: Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations and use regardless of a student's body size, posture, mobility and communication needs.
> 8. A community of learners: The instructional environment promotes interaction and communication among students, and between students and faculty
> 9. Instructional climate: Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students."

Inclusion is about not classifying students into so-called normal and special. The basic idea is that students' differences are natural (Lakkala, Uusiautti & Määttä 2018).

What Makes IE As a Wicked Problem

Before we may define more precisely why IE is a wicked problem, one needs to understand the theory of wicked problems. The term wicked problem and the ten points that make a problem a wicked one was coined by Rittel and Webber (1973). Table 1. has the adapted ten points and an explanation on the side why inclusion can be viewed from those different points as a wicked problem. We will not reopen all the points in the text, but ask the reader to take a look at the Table 1. In general, what makes inclusion a wide complex and wicked problem is that there are several actors or stakeholders that all have divergent opinions of the issue thus making it hard to understand or create a "right" picture of the problem.

Table 1. Summary of the Ten Wicked Problem Points (Rittel & Webber, 1973) and How They Can Be Understood in Inclusive Education

POINTS, DEFINITIONS	**WHAT THEY MEAN IN THE FIELD OF INCLUSION**
1. There is no definite formulation of a wicked problem.	It is not an easy task to define what is inclusion and how it should be performed in the educational system. There are several types of diagnosis and also hardly the teaching personnel has the required education for each case, nor the schools are prepared for receiving the pupils or lack the resources to make the needed adaptations.
2. Wicked problems do not have a "final solution" because the resolution can always be improved.	As the inclusion as such is a large challenge, one can always find ways on how to improve the solutions.
3. Solutions to wicked problems are not true-or-false, but good or bad.	When piloting solutions for inclusive education it is impossible to claim that a solution would the "right one", "true" or "false" but can declare that by doing an action one can obtain results that are better or worse for the situation.
4. There is neither a final test nor an immediate solution to a wicked problem.	The inclusion or "diversity" is a theme that has been among us as long as the human-race exists. We haven´t found any immediate solutions for this issue yet nor tests that have solutioned the problem.
5. Each solution tentative to a wicked problem is a "one-time operation" and each attempt counts significantly.	When performing pilots in the inclusive education field, it is hard to know what the exact consequences of the decisions are. One might be aware of the results in a short amount of time or they can take years to know as for example now there is knowledge how the inclusive education has effected on the teachers coping or well-being at work.
6. Wicked problems do not have enumerable sets of potential (or exhaustively descriptive) solutions.	Mapping out the wicked problems the people, actors, stakeholders can find still areas that could be possible development points to take interventions.
7. Each wicked problem is essentially unique.	Every student that requires inclusion is unique also we could state this to the schools or even countries where the inclusion is performed. Each one has their own history and local context different from each other.

POINTS, DEFINITIONS	WHAT THEY MEAN IN THE FIELD OF INCLUSION
8. Each wicked problem can be considered a symptom of another problem.	Inclusion is not a solitary problem as it is interlinked with budgeting, family support, social services, healthcare services, lack of workforce, to name a few.
9. The existence of discrepancies in the representation of a wicked problem can be explained in several ways. Choosing an explanation determines the nature of the problem resolution.	To define what the problem or the challenge at hand is will need to include several different stakeholders to discuss the problem matter. It is important that several viewpoints will be added. This way the people or actors that get to participate will select on how the problem will be viewed and possibly handled. Unique consensus is hard to reach as tensions might exist between the actors as local government, school or home.
10. The planner has no right to be wrong, because there are consequences.	The stakeholders or actors involved will need to carry the consequences of the pilots or larger decisions made in the field of inclusion. This means that people´s lives are at stake and the decisions could make it to better or to worse.

Source: Adapted from Rittel and Webber, 1973; Ritchey, 2013; Horn and Weber, 2007; Suoheimo, 2016; 2019, p. 29.

The inclusive solutions are unique as pupils are unique as well. The problems of inclusive education are multidisciplinary and overlap with the educational planning of schools, educational leadership, the teacher's job description, the student community and cooperation with homes. The problem is old: It has been more than 25 years since the Salamanca Statement (Ainscow, Slee, & Best, 2019), and has not been solutioned until today (e.g. Power, & Taylor, 2020; Schiff, & Burton, 2019). There are no definite final solutions for wicked problems, but the situation can always be tackled. Wicked problems are political and macro level challenges (Kotaniemi et al., 2023; Suoheimo, 2020; Suoheimo et al., 2020). The lower levels we go from micro to macro, we will lead with a larger need of time, resources, participation but the level of uncertainty will also increase. Successful inclusion requires financial and human resources (Oetjen, 2023). Attention must also be paid to resources because, according to statistics from the municipal pension fund (KEVA, 2024) in Finland, there will be many retirements from primary education and early childhood education in the coming years. The politicians in international, national and municipal levels need to make budgeting decisions on what to prioritise (Bakker & Demerouti, 2007). The number of pupils in need of special and additional support has increased from 2011 to 2019 (Äärelä, Määttä & Huusko, 2021).

In the micro or meso level the specific challenges of inclusive education are: 1) the equal treatment of pupils, 2) the transformation of inclusion into exclusion, 3) the status of pupils from different backgrounds and school culture norms, and 4) providing adequate support for diverse pupils. These will be considered in more detail below.

It is also important to pay attention to teacher training. We may ask if the current teacher training provides the competences needed in the world of work (Schwab, Resch & Alnahdi, 2021). Inclusive education requires teachers

to have positive attitudes towards different students, as well as numerous knowledge and skills to master different teaching methods (Roose et al, 2022). Still, the solution to IE is not enough to develop teacher education, because inclusive education as a wicked problem requires multi-level new measures, values, desire for development and co-operation (Middleton, 2019; Orozco & Moriña, 2023)

Service Designing from the Systemic Approach Perspective to Tackle WPs

Service design means user-oriented development of services. The users of the services actively participate in the development, and service design is determined by iterativeness and making experiments. Suoheimo (2020) has described how the possibilities of a service designer to deal with wicked problems are manifold. Service designers help create innovations, facilitate cooperation processes, promote cooperation, control visualisation. Service design is suitable for a wide range of problems such as social planning, political planning, management and sustainable development. In service design, the focus is not only on the individual level, but environmental levels can be examined. Service design and systems design are two different fields or orientations, but they can be used together.

The Systemic Design Framework (figure 1) was developed to help designers working on major complex challenges that involve people across different disciplines and sectors (Design Council, 2021). The framework places people and the planet at the heart of design and includes six principles for systemic design that can be used to help people develop or adapt new design methods and tools from their own practice. These principles are:

- People and planet centred: Design should be focused on the needs of people and the planet.
- Zooming in and out: Designers should be able to zoom in and out of the system to understand the different levels of complexity.
- Testing and growing ideas: Designers should be able to test and grow ideas in a way that is iterative and responsive to feedback.
- Inclusive and welcoming difference: Designers should be inclusive and welcoming of difference, recognizing that diversity is a strength.
- Collaborating and connecting: Designers should collaborate and connect with others to build shared understanding and ownership of the design process.
- Circular and regenerative: Designers should aim to create circular and regenerative systems that are sustainable and resilient. (Design Council, 2021).

Exploring, reframing, creating and catalysing are types of design activities as presented in Figure 1. The design process, including orientation and vision setting, connections and relationships, leadership and storytelling, continuing the journey are activity enablers. (Design Council, 2021).

The framework also includes four key roles for designers to play when tackling systemic issues:

- System thinker, leader and storyteller: Designers should be able to think in systems, lead and tell stories that help others understand the complexity of the system.
- Designer and maker: Designers should be able to design and make things that help to solve problems.

- Connector and convenor: Designers should be able to connect and convene people from different disciplines and sectors to build shared understanding and ownership of the design process. (Design Council, 2021).

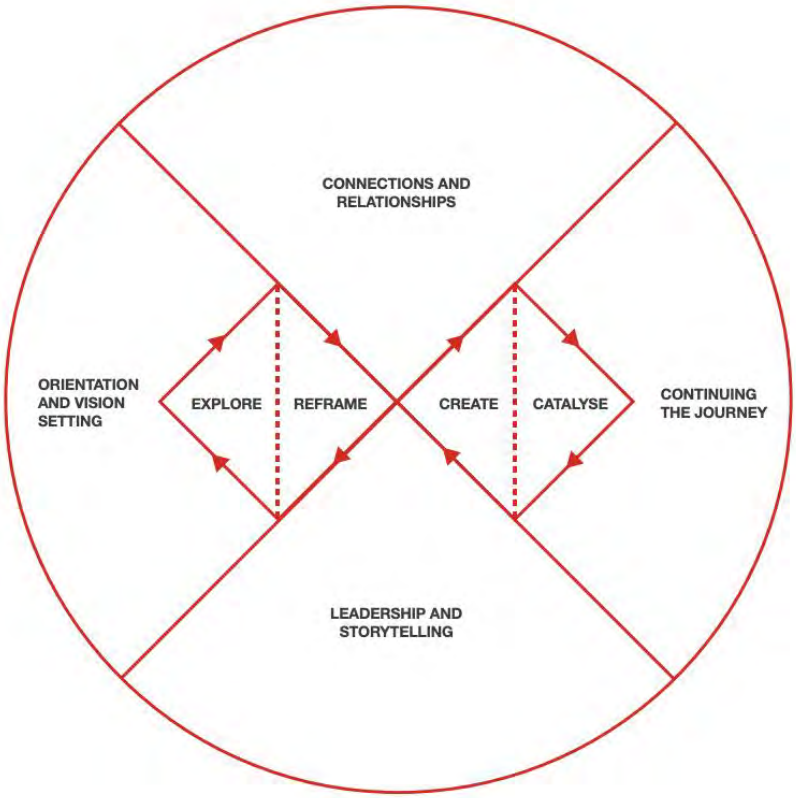

Figure 1. Systemic Design Approach (Design Council, 2021)

The Difficulties of Implementing Inclusive Education

There are several practical challenges in the implementation of inclusive education. Next, we summarise the challenges into four questions.

1) Is Equality for Pupils with Different Backgrounds Ensured?

Inclusive education is seen as a way of thinking that ensures equality between pupils. The Salamanca Statement (UNESCO, 1994) defines the school as a place where children with special needs can also learn together with their peers in mainstream classes. In this way, they are not segregated in special classes (Hornby, 2015). The principle is that those with special needs and disabilities receive adequate support and have access to mainstream services "according existing possibilities" (Kivirauma, Klemelä & Rinne, 2006).

For inclusion to become a reality in educational practice, it requires a holistic change in school culture (Eisenman et al., 2010). This requires a renewal of the work of both special and classroom teachers. Relationships between

pupils and the ability to accept and value others also become crucial in a school for all (Gottfried, 2014). In this context, the essential question is whether equality can be achieved for all, including pupils with different needs.Will equality also be guaranteed for pupils whose socio-economic background and culture do not match the values of the school? Education has been shown to be socially transmitted, i.e. the educational level of parents is reflected in the educational level of their children (e.g. Smyth, 2004). High levels of parental education contribute to a favourable attitude towards education. The selection of pupils based on the socio-economic background of the home is a challenge for inclusive schools (Kosunen, 2013). And the way parents intervene in schoolwork is not always to the child's advantage (Pomerantz, Moorman, & Litwack, 2007).

2) Inclusive or Exclusive Education?

Research shows that primary schools are able to support people with learning difficulties in areas such as reading and writing. In contrast, children and young people with behavioural difficulties are at greater risk of exclusion (Archambault, Janosz, Morizot & Pagani, 2009; Äärelä, Määttä & Huusko, 2021).

An important challenge for inclusive school and teaching work is therefore the question of whether the school and teachers are able to include or exclude different pupils in some ways in their activities (Hallett & Hallett, 2021). Who is noticed, who is rewarded, who is listened to or included? These questions concern not only teachers in their pedagogical activities, but also the relationships and choices between pupils. A pupil's sense of inclusion and belonging comes from being accepted into a community and having their membership accepted regardless of their differences (e.g. different voice, mobility, need for assistive devices). It is difficult to change the rules of students' peer culture through an inclusive solution alone (Köngäs, Määttä & Uusiautti, 2021).

Inclusive schooling alone will not solve or eliminate ill health among primary school children. It is often a wider dimension of the exclusion process. However, school plays a key role in either increasing or at least intermittently reducing malaise (Äärelä, Määttä & Uusiautti, 2015). Schoolchildren spend a large part of their waking hours at school with adults and peers. Schools have the potential to provide restorative experiences for students with deficiencies or damaging factors in their growth environment (Goodman & Burton, 2010).

3) Who adapts: The School or the Pupil?

A teacher has students to teach, each of whom is different. There are differences between individuals in the way they act and behave. There is a reason why pupils behave in a deviant and painful way. It is important for the teacher to take into account and emphasise the fact that pupils' ways of acting, coping and also their use of language have been built up over the whole continuum of their lives up to that point. The child has been socialised into the customs of their home and immediate environment (Staff & Kreager, 2008).School and teachers are, in a way, on the borderline of two cultures with these children who have behavioural problems: the culture of the home and the culture of the school. It is desirable that there is only one culture in the school, and as uniform a culture as possible, because every home has its own. All these numerous cultures are present in the classroom. It is unlikely that a pupil will be able to change his or her behaviour, which has been described as 'inappropriate', to

conform to the norms and rules of the school culture if their home background has not provided the necessary background (Äärelä, Uusiautti & Määttä, 2015, 2016).

4) **Does The School Provide Enough Support for Different Types of Pupils**?

The challenge of inclusive practice is that the range of needs of different learners in an inclusive classroom is so wide that the expertise of one educator is not always sufficient to meet them (Juvonen et al., 2019). This is a challenge not only for classroom teachers in primary education, but also for special needs teachers. Teachers are required to have increasingly specific expertise, which at present should cover in depth the whole broad field of special needs pupils. These include the mentally handicapped, autistic, behavioural, dyslexic and migrants with special needs.

Learning and learning outcomes, learning environments and teaching arrangements are the sum of many mutually contradictory factors, and the relationship between causes and consequences is often complex (Määttä, Äärelä & Uusiautti, 2017). The first PISA surveys made Finnish comprehensive schools famous around the world. Finnish comprehensive school pupils excelled in reading, mathematics and science. The other Nordic countries, England, Germany, France and the United States were left behind (OECD, 2004). Finnish performance has been on the decline since 2006. According to OECD's education at a glance statistics, There are several reasons for the decline in school performance. Interestingly, the decline in PISA results and the increase in inclusion have coincided: at the same time as inclusion in schools has increased, learning outcomes have declined. However, public debate often overlooks the fact that public sector cuts and the resulting increase in pupil group sizes, for example, also coincide (Määttä, Äärelä & Uusiautti, 2017). There is no reliable research on the link between inclusion and PISA results. The new education system and inclusive schools challenge both teachers and students to develop teaching and learning methods. It is essential that all learners develop a strong motivation to study and a desire to learn new kinds of knowledge and skills so that it becomes lifelong. The new system must not overburden teachers, and attention must be paid to the well-being of both teachers and pupils. The joy of teaching and the joy of learning are interlinked (Rantala & Määttä, 2011).

How to Create Interventions to Inclusive Education via Systemic and Service Design

The challenges and questions noted above are systemic and wicked, thus tools and approaches created for that level should be applied, which means going to the macro level development, but not excluding the meso and micro (Suoheimo et al., 2020). Macro-level includes the national or international as European Union laws for inclusive education, meso-level context could be the municipal or provincial level decision making and the micro a specific school that is applying the laws in practice. The Systemic Design Approach can use several tools to unfold the wicked problem, inclusion. Several mapping tools have been developed to understand the macro level challenge or in other name the wicked problem or the system at hand e.g. Mess Mapping™ (Horn & Weber, 2007), and Gigamapping (Sevaldson, 2022).

Current scientific literature has connected “inclusion in education” and “systems”, as the searches with these

words created almost 13 000 results in Google Scholar in February 2024. Although systems are recognized in the field in inclusive education, currently it is not possible to find publications that would use systemic mapping tools to grasp the complexity as, "Gigamapping" or "Mess Mapping". We run the same search by adding these words in the same search "inclusion in education" and "systems" each separately. It feels to resonate with what Walton (2017) has written that the inclusion in education seems like a tame solution to a wicked problem. Suoheimo (2016, 2019) has appointed previously how wicked problems require tools and strategies designed for wicked problems. It may be even harmful to handle a wicked problem as a simple one. We for this reason propose the use of systemic mapping tools to grasp the complexity at hand. This could be a novel approach for the inclusive education. Mess Map is a tool or process applied often to public services such as mental health care (Horn & Weber, 2007) or social services (Sarantou & Suoheimo, 2018). Figure 2 shows a Mess Map created with social and health care workers of Finnish Lapland to better understand the challenge at hand and how to design better services for that context. The mapping is made collaboratively with the stakeholders. This means that the principle of wicked problems, that who is invited to define the problem, is essential. It is possible that some stakeholders might prefer to invite others to the mapping sessions to discuss the issue. The aim is to visually understand the interconnectedness of the wicked problem at hand and make sure that different voices are heard and understand how people or organisations are causing the troubles to each other in the system (Horn & Weber, 2007).

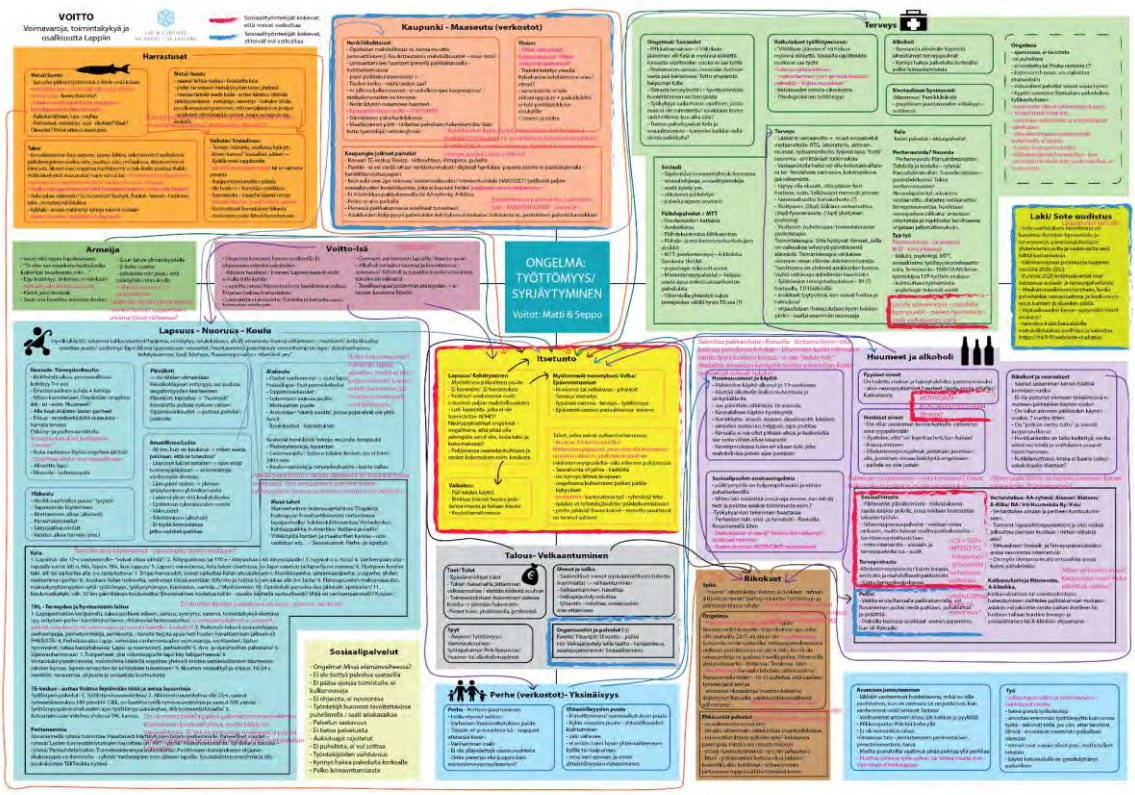

Figure 2. A Mess Map Picturing the Challenges of Unemployment of Middle-Aged Men in Finnish Lapland (Sarantou & Suoheimo, 2018, p. 60)

Another tool Gigamapping is another way to understand the often unseemingly interrelated problems and their interconnectedness. Figure 3 shows an example of Gigamapping of mental health among adolescents in

Netherlands (Vos 2024, p. 6). Gigamaps also encourages the involvement of stakeholders, but it could also be made individually by the developers or researchers in question. Sevaldson the founding father of Gigamapping and Systems-oriented design highly recommends engaging the community and stakeholders in question. Gigamapping parts from the principle of not simplifying the problem but embracing the complexity and it can integrate both qualitative and quantitative data. Gigamaps can use mind maps, diagrams, causal loop models, scenarios, user journeys to name a few ways of visualising information. Making the invisible visible will help to understand what the system is and thus make better designs, but also understanding what the casualties are and thus the positive and negative consequences in a system. These are some of the key principles of system-oriented design that the Gigamapping is based on. (Sevaldson, 2022).

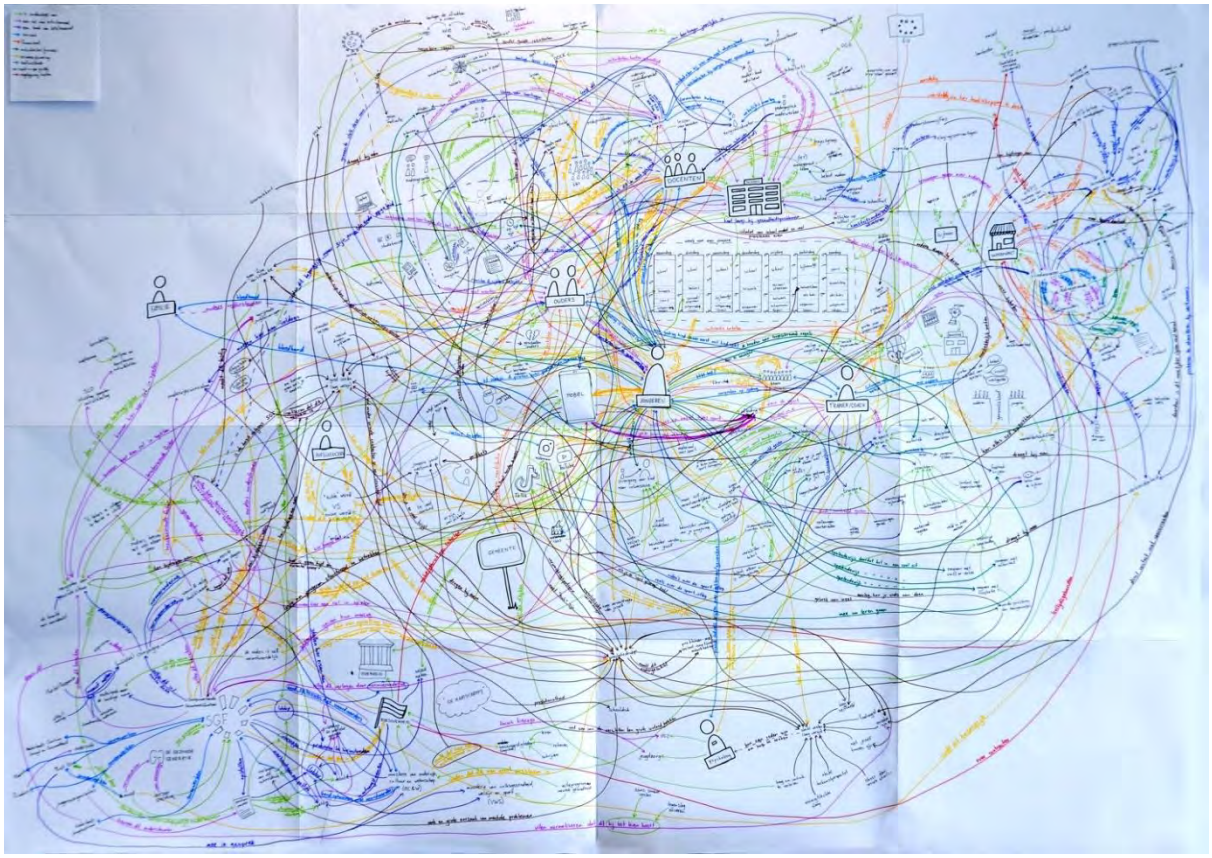

Figure 3. Gigamap of Mental Health among Adolescents in the Netherlands, Created Using the Insights from Various Stakeholder Sessions (Vos, 2024, p. 6)

Both mapping tools are able to give a macro level understanding, but they also will enable to see what are the meso and micro level areas that will need further development. The governmental policies, laws and regulations are setting often the boundaries what is possible and not. For this reason, the interventions and new services designed will need collaboration in such a level. Mapping the laws and regulations might be one of the first steps when starting a Mess Mapping and Gigamapping processes. Participatory approaches for these mapping tools are essential. This is also a previous finding of Suoheimo (2016) how the tools created for wicked problems all host collaborative strategies. Once areas of interventions are identified, it is possible to know what the consequences, both the positive and negative will be for the system.

To design those interventions, it is possible to use the wider service design toolbox that uses much ethnographic tools and blueprints to design better services. Ethnographic tools would contain e.g. making interviews and observations. Blueprints or service journeys (Stickdorn et al. 2011) are a way to unfold the experience of the user, which in this case could be of a student or a teacher in a service system. There are several layers that encounter in a service such as a pupil and a teacher meet in the front stage, but also much happen in the backstage as school administration. Visualizing these service moments will help to understand how to better design the service.

Discussion

Inclusivity in school and inclusive education is about seeing teaching as a multidisciplinary collaboration and working across silos, which is a systemic challenge. A teacher's broad special pedagogical competence is not enough; multi-professional, broad collaboration is needed. The role of careers is also becoming increasingly important in collaborating with schools (Young, Morgan, Callow-Heusser & Lindström, 2014). Parents cannot be bystanders; their active involvement in their children's motivation and performance at school is essential. Teacher well-being also requires positive support from parents. A particular challenge is how to raise parents' pedagogical awareness. This requires a new approach and insights into how to get parents to cooperate well (Äärelä, Määttä & Uusiautti, 2016).

At the meso level, it is especially important for educators to support different students. The activities of early childhood educators, teachers and also parents are central. If inclusion fails to attach the pupil to school, to involve or to take the growing child with their own particular characteristics into a full member of the community, school and education will fail in their social mission. If they fail in their task of individualised education, schools and education place the adult at a very high risk of exclusion from society. In micro/meso level an inclusive school fails if a pupil with learning difficulties does not receive adequate support for his or her learning. In this case, for example:

- difficulties in learning to read or write are not noticed,
- the characteristics of people with hearing or visual impairments are not sufficiently taken into account,
- those who are emotionally unstable and have rudimentary social skills are not provided with positive role models, are stigmatised and blamed, and are left without help,
- people with developmental disabilities have not had adequate support and assistance with their school career.

If inclusive schooling and teaching succeeds in its primary education mission, students will acquire the necessary knowledge, skills and competences and move on to continue their education on their own path to secondary school and from there move on in their lives. In this case, the school has succeeded in its most important task: it has succeeded in socialising and integrating the growing individual into society (Määttä, Äärelä & Uusiautti, 2018).Inclusion starts in the early years and the attitudes and practices that are formed there. Children can be influenced, and it is therefore important in education to create "a positive sense of inclusivity" through collaboration between those involved in education and training (Nutbrown & Clough, 2009). The micro level of

IE in a school context will become better if there is a dialogue and collaboration between the macro and meso level to the micro, the school. In this publication we wish to open new ways of understanding it via systemic design approach and the use of mapping tools to create interventions and new services or enhance the existing ones.

Tools designed for wicked problems such as Gigamapping and Mess Mapping are able to bring visual and one way tangibility to the invisible structural and systemic challenges. This would mean that different stakeholders should be a part of inclusive process, which will take many joint sessions in listening and visually understanding via mapping the pain areas that will require changes. These changes are often related in macro level public policies, regulations, and laws. The involvement would need to be in the micro, meso and macro levels. We see that collaboration is essential and these mapping tools with the systemic design approach would be ways to handle the issue. This does not mean that “right” solutions could be provided but acknowledging that the problem is larger, and it could impact positively some parts of the system and perhaps create unwanted consequences to another. This means that ethical considerations need to be considered as well, when handling wicked problems. We thus suggest more future studies on making case studies that would create new IE services via systemic design approach and using the mapping tools presented.

Recommendations

Despite the various challenges, there are many opportunities for inclusive education. As it develops and becomes more established, it will not be confined to primary education but will extend to other levels of education (Eisenman, Pleet, Wandry & McGinelys, 2010). As it expands, inclusion will be reflected throughout society. Schools have the tools to make the future more humane and equitable. The development of the school's operating and learning environment in order to strengthen an inclusive culture brings out the opportunities and challenges that the humanization of society requires.Inclusive education gives hope and courage to diverse individuals, as well as opportunities to find their own position and place and their own strengths in life (Lopez, Pedorotti & Snyder, 2015; Määttä, Äärelä & Uusiautti, 2018). Avoiding exclusion is important for the well-being of society as a whole.

Inclusive education should start already in the early years and it should base on the attitudes and practices that are formed here. Children can be influenced, and it is therefore important in education to create "a positive sense of inclusivity" through collaboration between those involved in education and training (Nutbrown & Clough, 2009). The micro level of IE in a school context will become better if the there is a dialogue and collaboration between the macro and meso level to the micro, the school. In this publication we wish to open new ways of understanding it via systemic design approach and the use of mapping tools.

Conclusion

In this publication we have shown via ten points defined by Rittel and Webber (1973) how IE is a wicked problem. Wicked problems are macro level challenges that also include meso and micro into it. To go deep into this kind

of a challenge, we have proposed in this conceptual research text to apply systemic design approach from the Design Council (2021). Practical tools have been developed for understanding the wicked problem at hand such as Mess Mapping and Gigamapping, which have not yet been applied in IE context. We see that our research is proposing a possible novel way of tackling this challenge, but recognizing at the same time how there are no perfect solutions to this kind of a context. The aim is to minimise the possible negative consequences of new laws, regulations and their possible negative impacts on the education of the students, teachers, families, communities among others in the context. We are giving this approach for fellow academics and practitioners to investigate it and give constructive feedback. We wish to see practical case studies applying the approach and the mapping tools.

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