Fostering human agency/ sustainability compentences at schools -   
Effects of participatory ESD projects on (individual and collective) self-efficacy beliefs using the example of the "KlimaRatSchule" project

How are participatory ESD projects influencing self-efficacy beliefs in students?

* Need for sustainability competence
  + Ongoing/ worsening problems
  + Behaviour- knowledge gap
  + Importance outcome orientation
* Effectiveness of Sustainability competence depends on the type of educational intervention
  + Very mixed results (knowledge up, behavior/ attitude did not increase)
  + 🡪 empirically looking at projects which apply those effective methods
  + ESD now in schools and local education plans, with mixed effects
  + 🡪 looking at schools were specific ESD program was carried out
* Sustainability competences depend on the scale and metric of observation// outcome orientation requires clarity about the goals which are targeted
  + 🡪 importance of empirical data that uses three dimensions (specify their effects more?)
  + goal orientation through local education plans 🡪 in case of outcome measurement, precise goal (content) specifications and operationalisations are necessary
  + good outcome measurement needs validity criteria (self-efficacy as validity?)
  + trade-off regional specificity and aim of getting broad picture of state of play and development
  + 🡪 importance of outcome orientation
  + 🡪 Long vs short-term
* Sustainability competence and its attribution to education intervention can be assessed through different methods, each with its own advantages and disadvantages (need for operationalisation?)
  + 🡪 importance of empirical data that uses three dimensions and can be related to project?
  + attributing effectiveness of intervention can be assessed by looking at involvement of students (can level of involvement already validate the indicators?)
  + 🡪 effectiveness of intervention is dependent on impact and should therefore still be monitored throughout and after project
  + 🡪 established survey
* Sustainability competence interplays with real environment and feeling of self-efficacy
  + Question is whether behavior can and should be a goal of ESD interventions?
  + 🡪 focus on self-efficacy as better outcome indicator?
  + 🡪 effectiveness of intervention is dependent on impact and should therefore still be monitored throughout and after project
  + 🡪 need for long-term impact focus?
* Output orientation calls for long-term assessment and other additional methods to evaluate impact
  + 🡪 possibility for both short and long term impact by assessing at different project stages?
* Sustainability competence can be validated by including other measures.
  + 🡪

# Introduction

Globally, we as humankind are facing many ecological and social crises at the same time. To address these challenges, there is strong scientific agreement for the necessity of collective pursuit of ecological and social aims. Many people obtain from acting together against climate change or social inequalities because they do not feel they or their group can make any difference. Understanding how people come to feel human agency and the belief that they can achieve something, in terms of individual and collective self-efficacy, plays a crucial role in motivating people to act. Motivating young people is especially important. It is not only their future that is expecting many uncertainties and changes, their interests should already now be taken serious and be included. By taking their ideas and aims serious and giving them spaces of opportunity to shape their surroundings, we can foster empowerment and motivation to act together as young people. One very present environment for young people is the school. Participative Sustainable Development Education (SDE) projects are a promising opportunity for both: creating this space of opportunity to influence their surroundings, while at the same time learning and experiencing to act together. When designing ESD projects it is important to understand the complexity modes of action in order to be able to implement good educational interventions. We currently only have a limited understanding of how participative Education interventions such as ESD-projects, as potential enablers , are contributing to self-efficacy beliefs in students.

* Wichtigkeit SW Kontext ökologische/ soziale Krisen stärken mit Kindern/ Jugendlichen an Schulen
  + Globale Krisen, world more complex
  + Agency, Motivation, Self-efficacy
  + Especially for young people important
  + In school: being able to shape their surroundings, reale Möglichkeitsräume schaffen
  + partizipative BNE-Projekte as one way
  + Wirkweisen komplex und abhängig von Methoden/ Inhalten/ Zielen/ BNE-Projekt und anderen systemischen Faktoren
  + Gleichzeitig werden Krisen drängender und BNE Forderungen immer lauter (Fridays for future; Jugendliche anxiety)
  + Need for actual shift in giving young people power to participate// Jugendlichen enablen und Hoffnung geben, Strukturen Bildungssystem
  + Wirkweisen verstehen im Projektdesign, um gute Bildungsinterventionen setzen zu können, mit Berücksichtigung Strukture Bildungseinrichtungen, is Schlüsselthema
  + We currently only have a limited understanding of how partizipative Bildungsinterventionen such as BNE-projects, as potential enablers, are contributing to self-efficacy beliefs in students.

Within reports and recommendations on SDE, it is common convention, that certain methods and approaches are appropriate to reach the goals set out. These methods include participative learning, self-induced learning, project work, voluntarism with the aims of achieving critical thinking, system thinking, and so on. Innovative, service-learning, potfoli-work, project work, roll- and plangames, problem-based learning (REF RIEß et al, 2021/ Rieß et al 2022 VORLESUNG1). However, until now, empirical data on the impact and outcome of ESD interventions within educational settings exists very little. Some of the challenges of assessing the impact of ESD interventions include the operationalisation and measurements. Lessons learnt so far are the agreement on the broad tripartite classification of ESD goals in terms of achieving competencies in the knowledge, attitudes, and behavioral dimensions (Waltner, application-oriented). (SW AS COVERING ALL OF THEM?). 🡪 precise goal (content) specifications and operationalization are needed in order to capture the underlying construct.

Do we need not only a shift from the input to the outcome orientation in the analytical/evaluative perspective but also a shift of attention from the purely cognitive to the behavioral components of SCs?  
When aiming for global indicators which are easily replicable and comparable, detailed observations need to be sacrificed. Consequently, additional qualitative studies looking into further details of the SC development process would represent a useful complement.  
So far, empirical research in that area, has focussed mainly on Climate attitude and behavior. However, these components ignore the aspect of creating spaces of opportunity to influence their environment (as participatory and experiential learning) which could be seen as combining cognitive, behavioral, and emotive components in its measures. Empirical research on whole school approach? Relevance of empirical data, analysing SDE interventions, which consider operationalisation and include in its measurement beyond cognitive measurement and gain of knowledge.

* *Paragraph: erst Self-efficacy und danach self-efficacy in schools? Andersherum? Oder gemischt?*
* Building up self-efficacy in schools is complex/ BNE in schools
  + Common convention BNE über: Mögliche pathways über Partzipation, eigenes Lernen, Projektarbeit, Freiwilligkeit (BNE- orientiert) mit Ziel von eigenständigen Denken (BNE2)
  + However: empirical data that suggests otherwise? Dependant on definitions/ operationalisations used// RESEARCH GAP:
  + Bisher Forschung zu Klimaeinstellungen und Verhalten: Wissen geht hoch; einstellungen runter, verhalten unverändert, (🡪 Knowledge behavior gap?)
  + Frage, wie effektiv, wenn SuS nicht selbst-motiviert, ob sie angesteckt werden können, wenn Strukturen im Weg stehen, ob es dann trotzdem Gefühl von Selbstwirksamkeit gibt 🡪 abhängig von Grad der Teilnahme, Aim
  + FACTORS NACH BANDURA ODER MEHR AUF PROJEKT ZUGESCHNITTEN?
  + Keine/ kaum empirische Daten zu medium term Projekten an Schulen/ Wirksamkeit BNE – WELCHE EMPIRISCHE DATEN GIBT ES?
  + Need for also informal/ outside of school ESD interventions like that one?
  + Ende: Wichtigkeit von empirical Self-efficacy im Bezug auf BNE Interventionen im Gegensatz zu anderen empirischen Daten wie z.B: Klima-Einstellungen

Considering increased self-efficacy through participatory and experiential as an aim of SDE interventions brings up the question of operationalising measurement of self-efficacy as well as its relation to pedagogical approaches and which other factors might influence it. Recent theoretical developments have emphasised the importance of differentiating and including agents, actions and aims and different connections when analysing self-efficacy related within ecological and social context. Furthermore, the desirability of the aim and aim content might play a central role, when analysing self-efficacy. So far, research has focussed more on individuals and has not yet considered the influence the environment (Whole School Approach) can play.

* Measuring sustainability competences is complex
  + Considering BNE-Bildungsinterventionen mit aim of increased self-efficacy in mind might lead to different needs of pedagogical approach and other systemic factors of school surroundings
  + New triple A framework (basierend auf Bandura etc) emphasized importance of agents, actors and aims and difference between individual and collective
  + Importance of desirability of aim

To be found out:

* Empirical findings effectiveness BNE
  + At schools
  + With self-efficacy
* Empirical findings self-efficacy
  + At schools
  + Overall
  + Triple-A frameworks

# Objectives and research questions

Ich werde den Einfluss von partizipativen BNE-Projekten auf SW-Überzeugungen von SuS untersuchen. Kürzliche theoretische Weiterentwicklungen von Selbstwirksamkeitsüberzeugungen bieten eine neue Möglichkeit die Wirkung von partizipativen BNE-Projekten dahingehend zu untersuchen. Durch die Integration des neuen theoretischen Triple A-frameworks of self-efficacy beliefs auf ein partizipatives BNE-Projekt bietet meine Analyse Einblicke in den Einfluss von Projektdesign als potenzieller Einflussfaktor auf die human agency von SuS.

Selbstwirksamkeit als outcome

* Steht der **Grad der Teilnahme** in einem positiven Zusammenhang mit **(individuellen)** Selbstwirksamkeitsüberzeugungen der SuS? (Desirability aim, group identification as potential moderators)
* Steht der Grad der Teilnahme/ Fortschritt des Projekts in einem positiven Zusammenhang mit **kollektiven** Selbstwirksamkeitsüberzeugungen der SuS? (Desirability aim, group identification as potential moderators)
* Steht der **Fortschritt des Projekts** in einem positiven Zusammenhang mit **(individuellen/ kollektiven)** Selbstwirksamkeitsüberzeugungen der SuS? (Desirability aim, group identification as potential moderators)
* Was sind strukturelle/ Projektdesign Gelingensbedingungen für höhere Selbstwirksamkeitsüberzeugungen bei SuS?

ODER

* Do students with higher level of involvement experience more changes in climate attitude and behaviour over time than students with lower levels of involvement?
  + How does the project evolution influence the magnitude of the changes in climate attitude and behaviour?
* How are changes in climate attitude and behaviour influenced by (collective and individual) self-efficacy beliefs?
  + How do desirability of the aim and group identification influence the magnitude of the self-efficacy beliefs?
* Steht der **Grad der Teilnahme** in einem positiven Zusammenhang mit **Nachhaltigkeitskompetenzen (kognitiv, affektiv/ motivational/ verhaltensbezogen)** der SuS?
* Steht der **Fortschritt des Projekts** in einem positiven Zusammenhang mit **Nachhaltigkeitskompetenzen (kognitiv, affektiv/ motivational/ verhaltensbezogen)** der SuS?
* Steht der Grad der Teilnahme/ Fortschritt des Projekts in einem positiven Zusammenhang mit **kollektiven** Selbstwirksamkeitsüberzeugungen der SuS? (Desirability aim, group identification as potential moderators)

Does a coaching program have the potential to empower its participants? Do group identification, collaboration skills, action skills, and envisioning a sustainable future enhance perceived efficacy? Do efficacy beliefs play a relevant part in activist motivation and activity?

# Research hypotheses/ predictions?

# Methods

In my analysis I ask how the level of participation of a participative SDE-intervention influences the individual and collective self-efficacy beliefs. I assess variation in agent-action-aim and agent-aim self-efficacy beliefs at different project stages across schools. To quantitatively and qualitatively test the impact of SDE-interventions, I will gain data by surveys and interviews.

## Databases

### Survey

### Interviews

Kategorien, die relevant sein könnten für höhere SW

* Desirability goal; wie nah an Erfahrungswelt dran
* Aim content and their feasbility from school side?
* Action skills, vision, group identification, collaboration skills
* Umsetzung im Projektverlauf; „Echtheit“ der Beteiligung
* Länge/ Tiefe der Teilnahme
* Gruppenidentifikation
* Kommunikation/ Transparenz
* Pädagogische Konzepte 🡪 siehe BNE, aber auch spielerische Elemente etc
* Bandura: Bewätigungserfahrungen, Soziales Modellieren, Ermutigung, Physiologische Zustände
* Intentional action?

# Proposed timetable

A diagram of action and action

Description automatically generated

* Wie kann (kollektives) menschliches Handeln aufgebaut, aufrechterhalten und genutzt werden, um ein gemeinsames Handeln gegen soziale und ökologische Krisen zu motivieren?
* Viele Menschen gehen nicht gemeinsam gegen den Klimawandel oder soziale Ungleichheiten vor, weil sie das Gefühl haben, sie oder ihre Gruppe könnten etwas bewirken können. Zu verstehen, wie Menschen zu der Überzeugung gelangen, dass sie etwas erreichen können (Wahrnehmung der Selbstwirksamkeit) ist daher entscheidend, um Menschen zu motivieren, sich gemeinsam für eine bessere Welt einzusetzen.
* Menschliche Handlungsfähigkeit zentral in Leute motivieren kollektiv für soziale und ökologische zu handeln.
* Je stärker SW, desto wahrscheinlicher wird es, das jemand handelt und Ziele erreicht (Bandura, 1997, 2000)
* Dabei sind junge Menschen nicht einfach nur Bürger:innen von morgen, es gilt ihre Interessen auch jetzt schon ernst zu nehmen und miteinzubeziehen. Dies gilt insbesondere vor dem Hintergrund drängender Fragen unserer Zeit (Generatio-nengerechtigkeit). Zur Vertretung der Interessen junger Menschen müssen nicht nur Möglichkeitsräume geschaffen werden, sondern auch eine Befähigung hierzu erfolgen (Lücke Interesse/ Partizipation). In
* Partizipation ist Grundlage einer nachhaltigen Entwicklung, deshalb ist Partizipation Bestandteil von BNE. Kinder und Jugendliche müssen beteiligt werden, damit die jüngere Generation die Gegenwart und die Zukunft aktiv mitgestaltet. Die Demokratisierung von Schule ist ein zentrales Element, um durch Mitgestaltung in Schule und Gemeinwesen Selbstwirksamkeit zu erfahren. Echte Kinder- und Jugendbeteiligung und Ermächtigung auf der Grundlage der Kinderrechte ist im Lern- und Lehrumfeld zu etablieren
* Keine empirischen Daten
* We currently only have a limited understanding of how partizipative Bildungsinterventionen such as BNE-projects, as potential enablers, are contributing to self-efficacy beliefs in students.
* Auch in Forschung Bedarf zur Untersuchung von SW.
* Wichtigkeit im framing von BNE. Aber keine empirischen Untersuchungen auf SuS Ebene.
* Bisher kein einheitliches framework, sondern viele verschiedene Definitionen etc.
* Unterscheidung von agents, actions und aims. Und individual and collective efficacy.