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## PREFACE

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### **EAPRIL is ...**

EAPRIL is the European Association for Practitioner Research on Improving Learning. The association promotes practice-based and practitioner research on learning issues in the context of formal, informal, non-formal, lifelong learning and professional development with the aim to professionally develop and train educators and, as a result, to enhance practice. Its focus entails learning of individuals (from kindergarten over students in higher education to workers at the workplace), teams, organisations and networks.

More specifically

- Promotion and development of learning and instruction practice within Europe, by means of practice-based research.
- To promote the development and distribution of knowledge and methods for practice-based research and the distribution of research results on learning and instruction in specific contexts.
- To promote the exchange of information on learning and instruction practice, obtained by means of practice-based research, among the members of the association and among other associations, by means of an international network for exchange of knowledge and experience in relation to learning and instruction practice.
- To establish an international network and communication forum for practitioners working in the field of learning and instruction in education and corporate contexts and develop knowledge on this issue by means of practically-oriented research methods.
- To encourage collaboration and exchange of expertise between educational practitioners, trainers, policy makers and academic researchers with the intent to support and improve the practice of learning and instruction in education and professional contexts.
- By the aforementioned goals the professional development and training of practitioners, trainers, educational policy makers, developers, educational researchers and all involved in education and learning in its broad context are stimulated.

### **Practice based and Practitioner research**

Practice-based and practitioner research focuses on research for, with and by professional practice, starting from a need expressed by practice. Academic and practitioner researchers play an equally important role in the process of sharing, constructing and creating knowledge to develop practice and theory. Actors in learning need to be engaged in the multidisciplinary and sometimes trans-disciplinary research process as problem-definers, researchers, data gatherers, interpreters, and implementers.

Practice-based and Practitioner research results in actionable knowledge that leads to evidence-informed practice and knowledge-in-use. Not only the utility of the research for and its impact on practice is a quality standard, but also its contribution to existing theory on what works in practice, its validity and transparency are of utmost importance.



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## Context

EAPRIL encompasses all contexts where people learn, e.g. schools of various educational levels, general, vocational and professional education; organisations and corporations, and this across fields, such as teacher education, engineering, medicine, nursing, food, agriculture, nature, business, languages, ... All levels, i.e. individual, group, organisation and context, are taken into account.

## For whom

Practitioner researchers, academic researchers, teachers, teachers educators, professional trainers, educational technologists, curriculum developers, educational policy makers, school leaders, staff developers, learning consultants, people involved in organisational change and innovation, L&D managers, corporate learning directors, academics in the field of professional learning and all who are interested in improving the learning and development of praxis.

## How

Via organising the annual EAPRIL conference where people meet, exchange research, ideas, projects, and experiences, learn and co-create, for example via workshops, training, educational activities, interactive sessions, school or company visits, transformational labs, and other opportunities for cooperation and discussion. Via supporting thematic sub communities 'Clouds', where people find each other because they share the same thematic curiosity. Cloud coordinators facilitate and stimulate activities at the conference and during the year. Activities such as organizing symposia, writing joined projects, speed dating, inviting keynotes and keeping up interest/expertise list of members are organised for cloud participants in order to promote collaboration among European organisations in the field of education or research, including companies, national and international authorities. Via newsletters, access to the EAPRIL conference presentations and papers on the conference website, conference proceedings, regular updates on cloud meetings and activities throughout the year, access to Frontline Learning Research journal, and a discount for EAPRIL members to the annual conference.

More information on the upcoming 2024 Conference in Hasselt, as well as some afterglow moments of the 2023 Conference can be found on our conference website <http://www.eapril.org>.

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# ONE FOR ALL, ALL FOR ONE? COLLEGIAL COOPERATION FROM THE PERSPECTIVE OF LATERAL ENTRANTS TO THE TEACHING PROFESSION

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## ABSTRACT

*The demands on teachers are becoming increasingly complex: teacher education that enables people to take these challenges into account and to meet them in a productive and professional way seems more important than ever. Nevertheless, due to a glaring shortage of teachers in Germany, more and more lateral entrants are entering the teaching profession – without having acquired the competencies generally considered necessary for professional action within the framework of an academic teacher training programme. As these career changers cannot draw on the knowledge they have acquired in the traditional way in everyday school life, colleagues and cooperation with them in the sense of "all for one, one for all" seem to be particularly important.*

*The study on which this paper is based reconstructs the importance that lateral entrants attach to collegial cooperation in the context of their specific situation, in order to identify the implications for action at the level of personal and professional development as well as for support programmes. On the basis of 16 problem-centred interviews with lateral entrants working in the state of Bremen, Germany, which were analysed using grounded theory, two basic orientations could be reconstructed. Only one of them seems to be able to shape teaching and school life in an appropriate and adequate way. The other orientation, which can be traced back to rigid hierarchies and a lack of appreciation within the teaching staff, leads to a practice that hardly meets the requirements of schooling and teaching in the 21st century.*

## INTRODUCTION

In the discourse on school education as a discipline, professionalism is generally understood as collaborative teamwork. For the realisation of the principles of contemporary teaching and the design of school development processes, this appears to be a central condition (Idel et al. 2019). Gräsel, Fußangel & Pröbstel (2006) distinguish three different types of collaboration in terms of intensity: exchange,

division of labour and co-construction. Depending on the type, different demands are placed on the participants with regard to the dimensions of trust, goal definition and freedom of decision, which, according to Spieß (2004), characterise cooperation at its core. Collegial cooperation in schools also requires an individual exploration of the autonomy-parity pattern (Lortie, 1975). Of particular interest is the question of how such a balance takes place when lateral entrants join a teaching staff: Due to the virulent teacher shortage (which is – according to UNESCO (2023) – not only a German or European, but a worldwide problem), career changers are now working in German schools in significant and steadily increasing numbers. They do so, however, without having acquired the competences generally considered necessary for professional action in the context of a teacher training programme. Since second career teachers cannot draw on their own knowledge acquired in the traditional way in everyday school life, colleagues and cooperation with them seem to be of particular importance. In this case, the slogan 'all (colleagues) for one (lateral entrant)' seems to be even more important than 'one for all', although the lateral entrant is still very important to keep the whole system alive.

Against this background, this article uses a qualitative interview study to explore how second-career teachers in German schools understand collaboration and what the implications are for everyday school life.

The article is structured as follows: First, the theoretical framework of the study is presented with the topics of lateral entry (Chapter 2) and cooperation as a characteristic of professional behaviour in teaching (Chapter 3). This is followed by a brief description of the sample and study design (Chapter 4), before the different understandings are elaborated on the basis of two case studies (Chapter 5). The article concludes with a discussion of the findings and the implications that can be drawn from them (Chapter 6).

## **LATERAL ENTRANTS TO THE TEACHING PROFESSION**

It is not a new phenomenon that there is a shortage of qualified teachers in Germany: in the long history of the profession, demand crises and oversupply have alternated cyclically time and again (Baar, 2010; Puderbach, Stein & Gehrmann, 2016). However, currently the shortage in Germany is at an unprecedented level. In 2021, more than nine per cent of all newly hired teachers in Germany will not have a teaching degree. Regional differences are considerable: while some states, such as Hamburg or Saarland, are barely affected by the demand crisis, in Mecklenburg-Western Pomerania and Saxony-Anhalt around a third and almost half of vacancies are already filled by career changers (KMK, 2022). In terms of the education policy framework, the pathways into the teaching profession in Germany vary from one federal state to another, and there are 16 of them, which is also reflected in the different designations: In Germany, 'Quereinsteiger' are teachers who have not completed a teaching degree but have completed a preparatory service or a traineeship. Upon successful completion, they are treated in the same way as their traditionally trained colleagues, i.e. they receive the same salary and have the opportunity to become civil servants, if this is provided for in the respective federal state. The city state of Bremen alone, for example, has three different ways in which



people without an undergraduate teaching degree can enter schools as lateral entrants. They range from post-qualification through an 18-month preparatory service to a 24-month, part-time qualification model and a programme in which lateral entrants also work as teachers over a period of three and a half years and, in addition to qualifying at the State Institute for Schools, complete accompanying university studies (cf. Senator HB 2023). On the other hand, ‘Seiteneinsteiger’ have neither a teacher training nor an internship. They attend further training programmes in parallel with their teaching duties (in Bremen this program lasts for two years) and, upon successful completion, are taken on as permanent employees, although they are graded lower than teachers who have completed their basic teacher training. Overall, the state of research on lateral entrants and their significance for schools and teaching appears to be underdeveloped in Germany (Porsch, 2021). Moreover, the different designations and particularities in the individual federal states make it difficult to systematise existing research findings (Barany et al. 2020; Reintjes et al. 2020). Nevertheless, there are some findings: Central topics in German research are career choice motives and (previous) professional experience (e.g. Loretz et al. 2017; Melzer et al. 2014), pedagogical competences (e.g. Keller-Schneider et al. 2016). There are also some isolated findings on motivation or professional orientation (e.g. Rotter & Bressler, 2019; Bellenberg et al., 2020; Beck, 2023; Damm, 2023). If we look at the state of research that has been conducted in English, we can find more studies and there are more topics being explored. Wilkins & Comber, for example, look at second career teachers as a resource for school improvement and conclude that they “have the potential to become effective change agents” (Wilkins & Comber, 2015, 1026). Chambers, Mack Johnson, Jones-Rincon, Tsatenawa, & Howard, 2019) investigated the reasons for the high attrition rate of career changers in the UK and found that they were twice as likely as first career teachers to leave the profession in their first five years. In their study, Rose & Sughrue (2020) suggest that this is mainly because their specific needs are not recognised.

However, the issue of collaboration and lateral entry has not yet been explored, either in Germany or (as far as we can see) in other countries - a gap that the study on which this article is based aims to fill.

## **COOPERATION AS AN ATTRIBUTE OF PROFESSIONALISM**

Everyday educational practice in schools requires collaboration at several levels: In multi-professional teams, teachers work together with special education teachers, school social workers, educational specialists and other professions or groups of professionals, for example, to create inclusive classrooms based on diverse expertise. Intra-professionally, teachers work together in year groups, subject groups or other team-teaching constellations, for example to plan lessons together, to create teaching media or to intensify internal school development measures.

From a cultural theory perspective, collegial cooperation represents a process of subjectivation and addressing in which not only competences and responsibilities are negotiated, but also differences are dealt with (cf. Idel 2018). Teacher collaboration is further understood as a social practice in which not only information and knowledge are exchanged, but also collective-implicit spaces of experience and

habitus are (re)structured. On the one hand, this contributes to the development of professional teacher behaviour (cf. Bloh 2018).

In the binding standards for teacher training in education, the Standing Conference of the Ministers of Education and Cultural Affairs of the Federal States of Germany calls for cooperation at various levels: On the one hand, cooperation with external partners should take place in multi-professional teams, for instance in order to fulfil the educational mandate in an appropriate manner. On the other hand, the focus is on cooperation within the school in order to do justice to the triad of diagnosis - support - counselling and to promote innovative projects within the framework of internal school development (KMK, 2019). From the perspective of organisational psychology, cooperation is characterised by the three dimensions of mutual trust and appreciation, goal definition and freedom of choice (Spieß, 2004). Along these central elements, Gräsel et al. (2006) distinguish three different forms of cooperation, which can also be described as levels according to their underlying intensity: Exchange, division of labour and co-construction. The call for cooperation in different forms and at different levels is in some ways at odds with Lortie's (1975) theorem of the autonomy-parity pattern, which influences teacher behaviour as an implicit structure. It states that teachers claim extensive autonomy for their own teaching, that all teachers have equal rights and that they should not interfere in the affairs of other colleagues. Perhaps this explains why there are some rather sobering empirical findings on teacher collaboration in Germany, including that although collaboration is generally desired, it rarely happens in school practice (e.g. Terhart & Klieme, 2006).

## **SAMPLE AND METHODOLOGICAL APPROACH**

The sample of the study on which this article is based consists of a total of 16 lateral entrants, seven of whom work in primary schools and nine in secondary schools. All of the interviewees work in schools in socially disadvantaged areas of the federal state of Bremen, which are also affected by a severe shortage of staff and have a high proportion of career changers. The range of degrees represented in the sample includes public health, cultural management, Polish studies and sociology, environmental sciences, geology and biology, mechanical engineering and industrial design, rehabilitation pedagogy and art therapy. Before entering teaching, the career changers had worked in areas such as health care, public relations, personnel and organisational development, insurance, school social work, engineering or industrial design, or as village helpers.

Problem-centred individual interviews (Witzel 1982) were conducted with the lateral entrants. The interviews lasted between 45 and 90 minutes. Some interviews were conducted on site at the schools, some - due to contact restrictions caused by the Covid-19 pandemic - using a digital video tool. The guidelines used included questions about the motives and process of lateral entry, individual school practices, and dealing with the socio-structural characteristics of schools such as multilingualism and poverty. No direct questions were asked about collaboration. Therefore, as part of the analysis, the interview passages that appeared suitable for shedding light on the focus topic were first selectively marked and then coded on the

basis of grounded theory (cf. Glaser & Strauss 1967). Following the inductive categorisation, internal and external case comparisons were used to identify understandings that went beyond the individual case in question. The findings were then reanalysed against certain factors (e.g. type of school, length of employment, initial qualification or (biological) sex of the respondents) in order to uncover any correlations.

## **IDENTIFIED ORIENTATIONS: DESIRE FOR SUPPORT AND WORKING TOGETHER IN EQUALITY**

From the data material it was possible to reconstruct two fundamentally different views on cooperation: On the one hand, an understanding that equates cooperation with *receiving help and support*, and on the other, a perspective that manifests itself in the in vivo code *sharing and working together on an equal footing*. Both views and their respective implications for practice are illustrated below using two case studies that can be considered particularly representative.

### **Cooperation as receiving help and support: "That you might also get support."**

#### *About the person*

Anne Kappler<sup>1</sup> is in her mid-fifties, has been a primary school teacher for a year and a half at the time of the interview and is currently part of an in-service training programme for lateral entrants. After studying social work and art therapy, she worked in various professional fields (including as a teacher in higher education and as an assistant for children with diagnosed special needs). She cites "the happy eyes" (39)<sup>2</sup> of children when she teaches art, for example, as her motivation for becoming a teacher. The interview was conducted using a digital video tool and lasted about 90 minutes.

#### *Cooperation needs, offers and participants*

The support programmes at her school hardly meet Anne Kappler's needs. For example, she criticises the "poor induction" (295) at the start of her job, which, as she points out, she has never experienced before in her career. Though, she does have a mentor in the person of the school director, who advises her after class visits. She also receives support from the class teacher, who she also describes as a mentor, in preparing written lesson plans. Beyond that, however, she would like to have a "teacher at her side [...] whom she can ask" (96) at any time. She feels that the existing support, which is rather selective and related to the specific occasion of class visits, is insufficient. Instead, she stresses the need for ongoing support.

The lateral entrant receives support in various formats from other colleagues: On the one hand, she talks about an older colleague who is in her team and shows her teaching material: "So I can look at her material. It is not that she gives me everything I need, but well, [...] I think that kind of support is great." (131ff.) On the other hand, she describes the coaching that takes place at various points in the training program

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<sup>1</sup> All names of the participants have been anonymised.

<sup>2</sup> The numbers given indicate the line numbers of the respective transcription.

(119f.; 247f.; 261). This serves, among other things, to deal with conflicts within the teaching staff, but also offers space to discuss challenging situations in everyday teaching. With regard to pedagogical questions, she would find it "quite good if you could get some support. More information, support and help" (464). She mentions targeted case discussions as suitable formats, but also the open exchange of experiences within the teaching staff, which does not take place in this way at her school (469).

### *Obstacles to cooperation*

A tight time budget seems to be the main reason for the perceived lack of cooperation. Anne Kappler certainly recognises the burden on her mentors, which stands in the way of her desire for more support. The school director, for example, has "a lot on his plate" (104f.). She also attests to the other colleagues: "Everyone has so much to do. All the teachers are full to the brim and nobody really has time" (298ff.). However, the perceived hierarchies are ultimately a greater obstacle for the lateral entrant. The school principal is at the top of the list, followed by "teachers who have studied" (109), and finally the career changers. Formal qualifications are used to construct a form of difference that is linked to claims to hegemony and marginalisation. Anne Kappler imitates the comments made to her by a colleague: "I know you're not good at this because you haven't studied it. I have studied it" (110f.). On a factual level, the interviewee supports this statement when she herself states: "Because you only know half of what teachers know, or not even half of it" (113f.). Nevertheless, the interviewee understands the statement as a devaluation ("They don't accept you like that", 114) and reports that she "already changed teams once" because she felt "bullied" (115).

The fact that the working atmosphere within the teaching staff is an important aspect for Anne Kappler becomes particularly clear when she is asked towards the end of the interview about her satisfaction with her decision to become a lateral entry teacher. She mentions a perceived "mare's bite" (639) that made her doubt her decision. When asked what she would like for the future, she mentions "acceptance from fellow teachers" and "a pleasant working atmosphere" (652) before the desire to "support the children" (653).

Anne Kappler sees another obstacle to cooperation in the organisation of teachers into what she calls "class families" (128), which would prevent collaboration with colleagues who do not teach in the same grade level: You "don't have that kind of contact" (129) outside your own team, even if there are thematically linked working groups as part of the school's internal development. The interviewee herself is part of a group that produces learning maps. She describes her own role as "very low-key" (221). She explains this as follows: "I haven't really found my feet in the school yet. I haven't put down roots yet" (222f.). She also feels "insecure with these tasks and that stresses me sometimes" (225). Ultimately, therefore, it is not so much external structures as a feeling of inadequacy that prevents a more intensive form of cooperation.

In her opinion, cooperation alone cannot cover the self-perceived need for professionalization. For example, she says about her own maths teaching: "I have a

colleague who always looks at it, [...] but I don't know if I sometimes convey it correctly [...] to the children". (228f.). She would therefore like to have her own didactic competence, which she hopes will come from "more training in mathematics" (226f.).

### *Summary*

Overall, Anne Kappler expresses a great need for support at various levels: She would like professional help in planning and reflecting on lessons. When it comes to the use of teaching materials, she appreciates the didactic advice of a colleague. Coaching helps her to deal emotionally with conflicts between colleagues and with special situations in everyday school life. The interviewee argues almost exclusively from a perspective that places herself at the centre: cooperation is desired in order to compensate for deficits that she perceives in herself and that are attributed to her by colleagues.

Using common definitions of cooperation (see above), Anne Kappler's interactions with other school actors cannot be described as cooperative behaviour *per se*: There does not seem to be mutual trust and there is no common definition of goals. Nor is the cooperation based on reciprocity and equality. Nevertheless, the interviewee is involved in working groups and in the so-called class family. The massive desire for support and the expressed disappointment at not receiving it reveal an understanding of collegial cooperation that can also be described as passive. For Anne Kappler, cooperation means receiving help and support to cope with everyday school life as a lateral entrant.

## **COOPERATION AS SHARING AND WORKING TOGETHER ON AN EQUAL FOOTING "I CAN CONTRIBUTE MY IDEAS AND WISHES."**

### *About the person*

Lynn Reichenbach is in her mid-30s and worked as a nurse for several years before taking a degree in public health. Her last job was in quality management in a hospital, but she was seeking for a more family-friendly working environment. Her desire to run sports projects in schools finally led her to the primary school, where she had been working as a lateral entrant for about a year at the time of the interview. The interview took place in the school's assembly hall and lasted about 45 minutes.

### *Cooperation needs, offers and participants*

At the organisational level of the school where Lynn Reichenbach works, cooperation is firmly anchored: art lessons are taught together with a co-teacher, she herself is present in a supportive capacity and "helps the children who have not yet understood" and "is there for everyone and simply gives support" (146f.). The cooperation with her colleagues serves to "somehow keep the children upright" (150f.) so that they do not lose themselves in lack of concentration, disruptive behaviour or similar even after a strenuous day of lessons. Responsibilities, distribution of tasks and degrees of responsibility seem to be clearly regulated: For example, the interviewee is "basically only involved" (148) in the supervised lessons, while her co-teacher is "in charge" (149). Cooperation also takes place under the

aspect of internal school development, for example when the teaching staff agrees on a certain approach to free work (according to Montessori) that also takes into account the needs of language beginners (246ff.).

As part of the further training for lateral entrants, the interviewee - like Anne Kappler - takes part in a coaching programme that focuses less on technical, professional aspects and more on "all other social conditions in this catchment area" (277f.). A situation-related exchange also takes place within the teaching staff. On the one hand, this is about emotional support ("I can't deal with this on my own" (322f.)), on the other hand, the exchange serves to generate solutions for the children themselves: In addition to "a lot of gut feeling, a lot of intuition [...] the exchange in the team actually" (340f.) leads to taking the children's perspective and introducing appropriate measures. According to the interviewee, she contributes her own "ideas and wishes" to all forms of collaboration, "both in the classroom and in the team as a whole" (387f.).

### *Summary*

At the beginning of her career, as a novice, Lynn Reichenbach would have liked to receive more basic information and support ("So I stood here on my first day at work and thought to myself, mhm, okay, what do I do now" (126f.)). Nevertheless, her understanding of cooperation is not a passive one that unilaterally demands help and only serves her own needs and qualification. Rather, the focus is on shared, co-constructive exchange and sometimes task-differentiated but equal collaboration with colleagues in order to offer students the best possible learning and development opportunities. At the same time, she values dialogue in different formats so that she is not left alone with her own emotions that arise in certain professional situations. It is striking that the interviewee - in contrast to Anne Kappler - does not talk about hierarchies between career changers and traditionally trained teachers.

## **DISCUSSION AND PERSPECTIVES**

The understandings of cooperation reconstructed in the study influence the everyday professional practice of lateral entrants in different ways: Career changers who fall into the category of understanding cooperation as *help and support* tend to have a more passive understanding of cooperation, in which their own role is largely limited to asking for and receiving help. This seems to be necessary to make up for a lack of experience and to compensate for professional and didactic deficits that they attribute to themselves and that others attribute to them. Cooperation is almost exclusively about oneself and one's existence as a lateral entrant. The understanding of cooperation as *sharing and working together in equality*, on the other hand, is characterised by an active 'giving and taking' that serves to secure and develop the quality of teaching and the school. Working with colleagues means focusing less on yourself and more on the pupils.

The understanding of cooperation as help and support does not at first appear to be very suitable for aligning one's own practice with the principles of contemporary school work. Beginners who hold this view are too preoccupied with themselves and the elementary management of everyday school life to orient their pedagogical



actions towards the needs of the children and to initiate appropriately adapted school development measures together with colleagues. This is not the case for lateral entrants, who understand cooperation as sharing and equal collaboration: They succeed in entering into cooperative relationships with the jointly defined goal of supporting pupils' learning and development.

The data suggest that these orientations are not natural, but have causes that can be addressed. The understanding of cooperation as help and support is not primarily due to a lack of professional knowledge (attributed by others or by oneself), but rather to a *lack of recognition* within the teaching staff and/or school management. The deficit-oriented focus on formal qualifications (which do not exist) creates hierarchies between colleagues with and without a teaching degree, which prevents trusting and equal cooperation. The fact that lateral entrants are denied professionalism *per se* means that they develop a massive need for support and help - a need that is rarely met. This leads to further frustration and insecurity. There is an urgent need to strengthen their self-image. This could be achieved, among other things, by systematically drawing on existing qualifications and competences (acquired outside the subject) in a resource-oriented way. The data from the overall study clearly show that this hardly ever happens in the field. In this context, it seems sensible not only to focus on the group of career changers as a personnel development measure, but also to prepare traditionally trained teachers for working with these colleagues. Joint coaching or supervision could be a valuable building block in transforming the prevailing coexistence into successful cooperation. On a structural level, it seems to make sense to institutionalise cooperation offers and to provide a sufficient time budget for this. Only then, according to the thesis based on our data, is it possible for the slogan "One for all, all for one" to become a reality in everyday school life.

It is foreseeable that the number of career changers will continue to increase in the coming years in order to meet the demand for teachers in schools. At the same time, the demands on teachers seem to be becoming more complex against the background of social developments (such as the differentiation of society, the loss of trust in politics, institutions and democracy, wars, refugee and migration movements, digitalisation, advancing climate catastrophe, etc.). Teacher training that enables them to take these challenges into account and mitigate them in everyday school life seems more important than ever. At the same time, ways must be found to enable those who enter the profession without a degree that qualifies them for the teaching profession to meet the demands. In order to develop viable policies and adaptive programmes, it is first necessary to know more about these people and their pedagogical and didactic practices, which is what the study on which this article is based aims to contribute to.

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# HOW DO PROGRAM DIRECTORS IN HIGHER EDUCATION USE THEIR RESOURCES TO ENABLE INNOVATION

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## ABSTRACT

*Universities are the driving force behind innovation and knowledge development in today's Western European societies. However, academics need an incentive to actively realize knowledge sharing. Stimulating innovation and knowledge exchange are strongly influenced by the opportunities offered by the educational institution. Programme directors (PDs) within a university are responsible for the organization and development of the educational programmes. They have become the central pivot in this, and they are responsible for optimizing the work processes and guaranteeing the quality of the graduates. In this study, we look at how PDs use their resources for innovation within their managerial frameworks in the educational organizations.*

*Twenty-five directors were interviewed, spread over eleven educational institutions and seven educational sectors. Nine women and sixteen men, all with more than five years of experience in the management of a higher education institution. These PDs were interviewed with open-ended questions about their experiences as managers, their successes, and their failures over the past 4 to 5 years. In these interviews, attention was paid to topics such as innovation in education, the relationship with the professional field, and the possibilities and limitations that the university gave them as PDs. This research shows that innovation requires room for experiment.*

## INTRODUCTION

Stimulating innovation and knowledge exchange are strongly influenced by the opportunities within the educational institution (Cabrera & Cabrera, 2005). Programme directors (PDs) within a university are responsible for the organization and development of the educational programmes. They have become the central pivot in this, and they are responsible for optimizing the work processes and guaranteeing the quality of the graduates (Westerheijden, 2022). PDs operate between senior-level administrators and teaching staff, providing a link between strategic goals and day-to-day operations. They play a significant role in supporting innovation within their managerial frameworks by utilizing available resources

effectively. Overall, PDs leverage their position to promote innovation by aligning strategic initiatives, allocating resources, facilitating collaboration, and evaluating outcomes. Their role is essential in driving positive change and improving educational processes and outcomes within the organization.

Interaction with the professional field have shown to be an important stimulator in knowledge exchange and innovation. This research focuses on the role of the program directors on innovation in higher education. Universities are the driving force behind innovation and knowledge development in today's Western European society. But academics need an incentive to actively realize knowledge sharing (Sormani & Rossano-Rivero, 2023). Moreover, in their contacts with the professional field, academics are more focused on the success of their students than on the exchange of knowledge (Frederik & Van der Sijde, 2023).

The situation studied here is that of the innovative PD. This director is the operational manager of an educational unit and, as a middle manager, is responsible for the implementation of the educational program within the frameworks set by the university and the government. As a PD, you are responsible for helping to shape education, leading and directing a teaching team and managing business operations. You have to supervise team managers and sometimes also supporting and facilitating people and employees who are involved in collaboration with external parties and guarantee quality assurance procedures. The balance between operational implementation and the maintenance and development of the curriculum is an important success factor. This study looks specific at innovative PDs. To make this selection, a number of members of Executive Boards were asked who, in their opinion, were innovative PDs. These directors were interviewed about their experience in innovation processes, their entrepreneurial behaviour, the successes and obstacles they have experienced and in particular about the way in which they have been able to involve the professional field.

In this context, thirty interviews of at least one hour were conducted with directors from healthcare, technology, computer science, social work, teacher training, agricultural sector and management. This research focuses on the PD as a manager with personal responsibility within the institutional framework of the university of applied sciences. Five of the interviewees subsequently turned out not to meet this criterion, because they did not have independent operational responsibility for a teaching team. These five have been excluded from this study.

*An example:*

“That whole training is an old structure. You cannot serve the current field of work in this way. This does not allow you to respond to current developments in the field. And there was a lot of resistance. Then I called everyone together and said: I see low student satisfaction, study success, poor accreditation, we just have a big problem with each other. We really have to do things differently. In the coming year we will visit a large number of organizations in the field and we will talk about what is going on with them, what do they think of our training and what would you advise us? There are three places available for each work field visit. So if you like it, come along. We make a report of every visit and put it on our intranet, so that everyone



can read along. If you can't join us, you can just read what we're going through. In addition, as teachers you all have ideas about what is going on and what could be improved or different. We will discuss this together in focus groups: how do you view the situation and how do you see it in relation to the students we train? How do you see that in relation to education? Finally, we let the lecturers make a substantive analysis. Based on theoretical research done on all kinds of government policies. What is currently going on in the field and what is the vision for the future. "(abbreviated, HF)

## THEORY

To explain the important role of PDs, particularly in stimulating innovation and establishing contact with the professional field, we can draw insights from recent developments in the theory of institutional entrepreneurship. Institutional entrepreneurship (DiMaggio, 1988) refers to the activities undertaken by individuals or groups within an organization to introduce new ideas, practices, or structures that challenge existing institutional norms and foster change. Program directors in higher education can serve as institutional entrepreneurs by initiating innovative practices within their programs. They can challenge traditional approaches, introduce new pedagogical methods, or establish collaborations with the professional field to enhance the relevance and effectiveness of their programs. Levi and Scully (2007) argue that institutional entrepreneurship is particularly relevant in educational settings where there is a need to bridge the gap between theory and practice. Program directors who engage in institutional entrepreneurship actively seek to align their programs with the needs and expectations of the professional field. By forging connections and collaborating with professionals, program directors gain insights into industry trends, emerging practices, and skills required for success. This engagement helps ensure that their programs remain relevant, responsive, and innovative, thereby preparing students for real-world challenges. Garud's (2002) highlights the role of institutional bricolage. Bricolage refers to the creative recombination of existing resources, practices, and norms to generate new solutions. PDs can engage in institutional bricolage by leveraging available resources within the educational institution and the professional field to develop innovative program offerings. They can adapt curricula, collaborate with external partners, or introduce interdisciplinary approaches that combine existing elements in new and creative ways. This approach stimulates innovation by capitalizing on existing resources and breaking away from traditional educational structures. Leca, Battilana, and Boxenbaum (2008) propose the concept of "institutional work" in institutional entrepreneurship. Institutional work refers to the activity's individuals undertake to create, maintain, and disrupt institutions. Program directors engage in institutional work by challenging existing norms, advocating for change, and influencing institutional actors. By actively engaging in institutional work, program directors can stimulate innovation within their programs and the broader educational institution. They can challenge outdated practices, influence policy development, and create an environment that supports innovative approaches to teaching and learning. Institutional entrepreneurship is important for PDs as it stimulates innovation and establishes contact with the professional field. By engaging in institutional entrepreneurship, program directors bridge the gap between theory and practice,

align programs with industry needs, incorporate experiential learning opportunities, engage in institutional bricolage, and undertake institutional work to promote change and foster innovation. These activities contribute to the relevance, effectiveness, and competitiveness of higher education programs in preparing students for the professional world. Institutional entrepreneurship theory highlights how actors with sufficient resources see opportunities to realize interests that they value highly” (DiMaggio, 1988, p. 14). Institutional theory is characterized by adherence to a given way of acting – of doing things. This is streamlined within predetermined frameworks. When actors want to act in a change-oriented way, they will act outside these bandwidths. Thus, a contradiction arises. The question here is how, within the usual course of action, change-oriented action takes place or, even better, is conceived of at all? We used this change-oriented attitude to subdivide the ways in which PDs use their powers and capabilities to act innovatively or to adopt a more administrative attitude.

The distinction made by Sirmon et al. (2011) in structuring, bundling, and leveraging resources can provide insights into how middle managers in an institutional setting in higher education overcome resource constraints and achieve value through innovative orchestration of resources. The structuring of resources involves organizing and arranging resources in a way that enhances their effectiveness and contributes to achieving specific goals. In the context of higher education, middle managers, such as program directors, can structure resources by strategically aligning them with the objectives of their programs. This could involve allocating financial resources, personnel, and infrastructure in a manner that supports the desired outcomes and innovative initiatives. By structuring resources effectively, program directors can optimize their utilization and enhance the program's performance. The bundling of resources by combining and integrating different resources to create synergies and generate value. By bundling resources, program directors can enhance the capabilities and capacity of their programs, enabling them to pursue innovative practices and achieve desired outcomes. The third distinction made by Sirmon et al. (2011) is the leveraging of resources by utilizing existing resources in a way that maximizes their impact and generates value. Middle managers in higher education can leverage resources by identifying opportunities for collaboration, networking, and knowledge sharing. This could include forging partnerships with industry professionals, engaging with alumni networks, or leveraging existing research and infrastructure within the institution. By leveraging resources effectively, program directors can tap into external expertise, gain access to additional resources, and enhance the innovative potential of their programs.

The study aimed to explore how middle managers in an institutional setting in higher education overcome resource constraints and achieve value through innovative orchestration of resources. By investigating the dynamics of resource orchestration in the institutional environment of universities, the study aimed to provide insights into the strategic management of resources and their impact on institutional entrepreneurship and innovation in higher education.

## METHOD

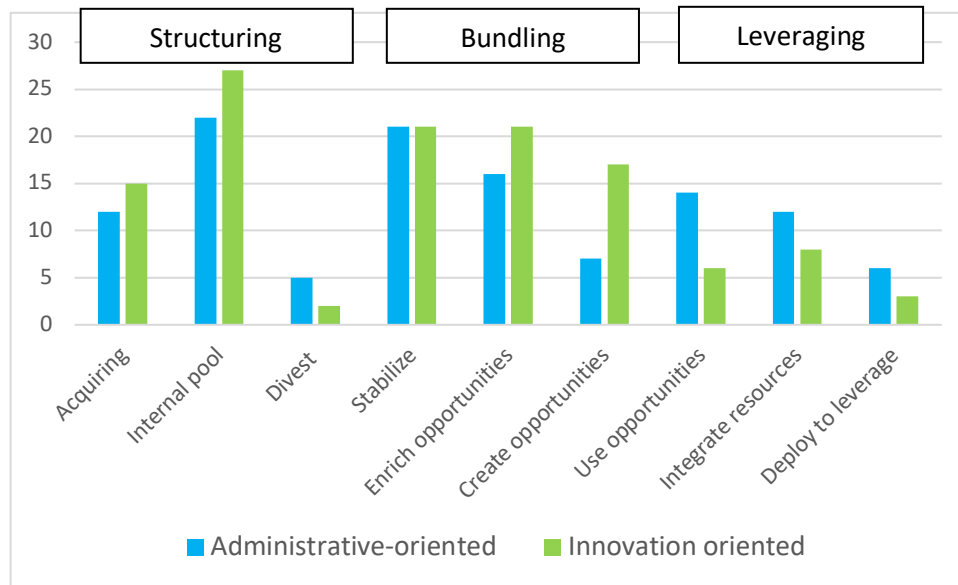
In this study, we look at how in higher education, the programme directors use their resources for innovation within their managerial frameworks. To get a good picture of the focus on innovation and the professional field, a number of university administrators were asked who, in their opinion, innovative program directors are. Thirty directors were interviewed, spread over eleven educational institutions and seven educational sectors. Five interviews turned out to be insufficiently useful because they concerned directors without management responsibility. Twenty-five interviews were used, nine women and sixteen men, all with more than five years of experience in management of a higher education institution. These PDs were interviewed with open-ended questions about their experiences as managers, their successes, and their failures over the past 4 to 5 years. In these interviews, attention was paid to topics such as innovation in education, the relationship with the professional field, and the possibilities and limitations that the university gave them as PDs. All higher educational sectors were represented, with the exception of the art sector.

We looked at awareness of institutionalized habits and routines (Emirbayer & Mische, 1998), ability to identify problems in current institutional arrangements (Battilana et al., 2009) and the ability to conceptualize alternative outcomes (Emirbayer & Mische, 1998). Central were the institutional aspects of formal authority, including the actor's right to make decisions (Hardy & Phillips, 1998) and access to the financial costs of change (Greenwood et al., 2002). We addressed resource orchestration by linking value creation in dynamic environmental contexts to management resources (Sirmon et al., 2011). The components of the resource management model included structuring the resource portfolio, bundling resources to build capabilities, and leveraging capabilities to provide value.

The 25 interviews, each at least an hour, were transcribed verbatim, stripped of social talk, anonymized and then coded based on Sirmon et al. (2011). ATLAS.ti was used for the coding (Figure 1). Where the quotes are from an interview, reference is made to a letter and a number. The letter stands for an education sector: E for education / teacher training, H for health care, A for agriculture, M for management, S for social sciences and T for technology / IT. The numbering is consecutive.

The following concepts were coded: structuring, bundling or leveraging available resources, looking for new opportunities and combining them with development opportunities, and integrating identified resources to increase effectiveness or efficiency. In addition, search terms such as profession, professional field, knowledge exchange, company, contacts, knowledge, knowledge innovation, and relationship were used. This coding was arranged in paragraphs to give an initial picture of the possibilities that PDs saw for maintaining and renewing their study programmes.

## RESULTS



These results provide a picture of how PDs used their duties and powers. The numbers on the y-axis are percentages of the total number of statements made by the PDs, ranked according to the reasoning of Sirmon et al. (2011).

The left (blue) columns reflect the answers of the PDs whom we recognized as administrative-oriented, in accordance with DiMaggio (1988). The right (green) columns reflect the statements of PDs recognized as aiming for innovation. This distinction was the result of the first coding in which the following question was distilled from the interviews: How do the relevant PDs view the possibilities and limitations that were given by their educational institute? (Tiberius et al., 2020).

All PDs indicated that innovation or modernization in relation to the professional field was of great importance to them (H6: “I am manager of Education & Innovation, and that word says it all – to really look from that point of view. What is needed? What is that dot on that horizon?” S3: “We are doing several innovations – curriculum revisions anyway – making crossovers in the context of interprofessional learning and working.” T6: “And whatever we started doing, that was also quite innovative – was a kind of open maker space type of thing.”).

Differences became visible in the extent to which directors saw opportunities to actually get started. The connection with the professional field was often guiding them (S3: “We have done all kinds of sessions with the professional field: What do you think it should go to? So, we had a professional field committee there, which was closely involved there, but we also had professional field sessions around it to reach a wider group.”) or at least stimulating them (H4: “And on a professional level, we went together very well.”). A limited number of directors related innovation and development to putting the standing organization in order. In one case, a director who showed their year plan received feedback, but where was the innovation? (M3:

“And I remember very well that I once gave a faculty-wide presentation in which I thought I was giving a reassuring message to everyone. And at that presentation, there was a lecturer who was like, OK, now this is the message, and where is the innovation?”)

A second notable feature was that directors received little support from the institutional organization for their development and renewal activities, although there was sufficient expertise available (S2: “The institutional environment, the policy documents that were available were of a high level. But then policy was not binding or directive. And do you just have almost a complete mandate to relate to it according to your own insights?”). It was noted that the slowness and lack of clarity of institutional decision-making unnecessarily limited the success of the innovation (E3: “Well, and then the way in which leadership is given. Just to name a few things, I have a new study programme, actually a merger of three study programmes, which is still very small, but then it will be half a year before a decision is made about it.”). It was striking that a similar approach, but without external support sources, was described as very successful in one case (H1: “I noticed the new concept was really successful. That meant that we really had a very high student satisfaction during the first 2 years. And also, that employee satisfaction was very high, and absenteeism decreased.”) but as failed in another case (T1: “At a certain point, the resistance is no longer manageable, and at that moment, you also see that the gentlemen’s agreement between the university of applied sciences and the business community no longer works.”), although the ambition was supported at the highest institutional level. In terms of the latter, the lead time, due to a change of personnel at the higher decision-making levels, clearly played a role.

Truly innovative and more or less disruptive innovation occurred in one case where, based on the research input of a researcher, the educational vision was prescribed and adopted for the entire university of applied sciences over time (E1: “Our educational concept is being introduced in phases. I’ve been to expert meetings, and it’s much more a matter of time. If you look at what most of the discussions are about, what does it mean for our education?”).

Another distinction that became visible was the focus on innovation. In a number of situations, the innovation turned out to be aimed at the content of the curriculum, especially updating the curriculum. In four cases, the update aimed at combining existing programmes into a few strongly up-to-date programmes, as the connection with the professional field required this. In this relatively limited research, it turned out that two very special educational innovations were involved. At one educational institution, care training was combined with social training, which together organized a new form of practical experience by advising their starting students during openly accessible consultation hours (H2: “HU Healthy & Well Centre, that is in the district. People have the opportunity for an interprofessional introduction, and then we will see what is relevant and what we can offer you. So now it’s in and out with eye measurements or skin consultation or whatever. We want to look much more holistically at the people who come in.”). Another institution was able to combine the innovation demands of a number of large companies by having final-year students from different study programmes and universities of applied sciences

work in teams on the research questions (T4: “Are they going to experiment with the companies? They have development and innovation questions, and we connect students to them: a mini hub with students who spend half a year doing a research assignment or completing a graduation assignment.”).

In this study, we looked at how PDs used their resources for innovation within their frameworks as higher education programme managers. The results showed that structuring and bundling were used for innovation regardless of the administrative or innovative orientation of the PDs. The PDs first looked at the internal resources and then stabilized and enriched these resources. Another remarkable result was the leveraging of resources. The administrative-oriented PDs were active in just this area, looking for opportunities, integrating resources and deploying them where possible. By contrast, innovation-oriented PDs looked for success by structuring and bundling resources. In general, we can conclude that these middle managers in higher education looked for resources they could handle and used these whenever possible.

## DISCUSSION

Much is fixed in higher education, which has a high rule density. Almost everything – price, place, naming, content, etc. – is meticulously monitored and controlled. This is particularly the case at universities of applied sciences because of the attitudes of most lecturers and the intertwining of management and education. So how do we bring about innovation? This is clearly very difficult within the existing environment. Even small incremental innovations quickly run into rules (“it can’t be done,” “it’s not allowed,” “it costs too much,” and “what are you going to do now?”). In practice, it appears that to realize innovation, it is best to set up a new project (e.g. a new course). Old, long-serving teachers and young flamboyant teachers come to life when they are allowed to come up with something new. Content is then enthusiastically created out of the box, contradictions are easily bridged, and cooperation flourishes. It is not surprising that the successful PDs almost all first tried to create their own space in which they wanted innovation to take place. They then asked for a mandate / freedom from their superiors. Only then did they get to work. They still have to fight back against superstars, but at least the atmosphere is set. There are many examples of new study programmes created in this way, such as the privatization of original tracks/specializations, separate innovation projects, and private–public partnerships, which are carried out either by the university of applied sciences itself or in cooperation with a number of fellow universities of applied sciences.

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# COHERENCE THROUGH TRANSNATIONAL SCHOOL-UNIVERSITY COLLABORATION: TEACH WHAT YOU PREACH

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## ABSTRACT

*In my contribution, I will present a German-French school-university project centred on the fascinating and tragic life of Eva Freud, Sigmund Freud's granddaughter. After her family fled Berlin, Eva Freud lived in Nice from 1934 to 1942 and attended the Lycée Calmette, whose current philosophy graduate pupils took part in the 2022/23 project, together with a group of student teachers of the French-German bachelor's degree program at the Université Côte d'Azur. I would like to show how the transnational and transdisciplinary settings of the collaborative project enhances coherence in foreign language teacher education in an innovative way. I will explore how different aspects of the project - its task- and project-oriented approach and its' out of school/university setting - contribute to the students' intercultural awareness and coherent professionalisation, overcoming the fragmented way in which professional knowledge is often acquired. My research question is: How and through which innovative measures can coherence, i.e. an alignment and meaningful relations between the different domains and phases of foreign language teacher education (Canrinus, et al. 2015; Hellmann, 2019) be promoted? To answer this question, the themes, objectives, activities, and student productions of the project will be presented and analysed.*

## INTRODUCTION

As a university project in Foreign Language Teacher Education, the project I present is situated in a specific educational context, according to the principles of competence and task-based teacher education. This general context will be outlined before I present the project setting, its aim, and its possible impacts on the coherence of teacher education programs for future foreign language teachers. The central research question I will try to answer is: How and through which vectors can coherence be enhanced in a project oriented foreign language teacher education which confers a double role of teacher and learner on the teacher education students. In order to answer this question, I will analyse the project design and output as well as student feedback which the participants provided through in depth interviews that were conducted during the project.

## EDUCATIONAL CONTEXT AND VECTORS OF COHERENCE

Teacher education in many European countries has been undergoing profound structural and conceptual changes for years. The design and structure of teacher education, the process of acquiring the core competencies necessary for the profession, and the effects of education and training on teachers and learners are topics that are prominent in current debates (and at the heart of Eparil Cloud 1 on TE). Structural changes, repeated reforms, new pedagogical approaches, and highly complex expectations due to the digital revolution, migratory movements, the pandemic, and the rise of AI are just some of the main phenomena that have been changing and are shaping Europe's foreign language classrooms for years to come (Grossman, Hammerness & McDonald 2009). Consequently, learning and teaching environments are also changing fast, creating new expectations and demands on the teaching profession. The educational environment in which our future teachers will be evolving is characterized by a multifaceted complexity: an increased cultural and linguistic heterogeneity on the one hand and a wide range of potential educational arrangements on the other hand shape the professional context of teacher education. Since Bologna and Pisa, most European countries have endeavored to take this educational context into account. The weight of the individual study elements and the relation between theoretical and practical components are being reconsidered to achieve a more coherent and balanced vocational training and to ensure the quality of teacher training programs, which is crucial for the skills of future teachers. This is even more important as student teachers might experience discontinuities between subjects, areas, and phases of teacher training. This means that professional knowledge is often acquired in a rather isolated, fragmented way and does not translate into adaptive and competent performance in the classroom ((Hefendehl-Hebeker 2013; Terhart 2004; Blömeke 2006). A Coherent teacher training, on the other hand, aims to overcome the fragmented structure of the various phases of the teacher training program and attempts to achieve alignment, coordination and interrelation between its professional domains, contents, and curricula. Its objective is to promote the acquisition of interconnected professional knowledge and a better preparation for professional practice (Canrinus et al. 2015; Hellmann 2019; Hermansen 2019; Lindvall & Ryve 2019; Muller 2009). Coherence can take place on a horizontal level, as an alignment between the central domains of teacher education, i.e. subject science, subject didactics, and educational science (or CK, PCK, PK, to speak with Shulmann 1986), or on a vertical level, by linking different phases, such as theoretical and practical training. Coherent educational programs as well as students perceived coherence impacts positively learners' outcomes and motivations at all educational levels. (Fortus & Krajcik 2012; McQuillan, Welch, & Barnatt 2012; Newman et al. 2001). The aim of the collaborative project on Eva Freud was therefore to create teaching-learning arrangements that foster a connected integration of knowledge and reflective skills for retrievable professional competences. The focus of this contribution will rest on the perspective of future language teachers and their awareness of the twofold role as learners and teachers they adopt throughout their professional development in teacher education settings as a vector of coherence. Consequently, I aim to discuss practices which enable students to explore what they are later expected to

adapt and apply in their own teaching – such as working with multimodal, creative tools and collaborative and cooperative teaching methods and settings. In the collaborative learning project, I implemented in 2022/23 at the Lycée Calmette and the University Côte d’Azur, the participants were encouraged to learn and explore from different perspectives and develop their own intercultural communicative competence (Byram 2021) as well as develop their professional competences in an immersive and authentic environment. In this context, the traditional formats of task-supported (language) learning and teaching (Hallet 2012; Ellis 2013) were to be combined with new potentials of creative out of school projects. The project was intended to build upon the advantages of out of school/uni learning and teaching such as the possibility to experience practice related, sustainable teaching, to work with tangible learning material and to offer learning incentives (Salzmann 2007; Sauerborn & Brühne 2010). This way, we hoped to create holistic, authentic, immersive learning and teaching situations, foster the necessary competences of reflective practitioners (Schön 1983) and, as a result, strengthen the coherence of the teacher education program.

## **EVA FREUD – A 20<sup>TH</sup> CENTURY DESTINY**

The transversal school collaboration project “Eva Freud – a 20th century destiny” which my article presents to reflect on the impact of project-oriented teaching as a vector of coherence is dedicated to the life and death of Eva Freud, granddaughter of Sigmund Freud.

## **A FAMOUS UNKNOWN – THE ORIGIN OF THE PROJECT**

The starting point of the project was the work carried out by a local association, the AMEJDAM, the Association for the Memory of Deported Jewish Children of the Alpes-Maritimes which was founded in 2003 on the initiative of descendants of deported children. With the support of the Ministry of Education, the Inspection d’Académie de Nice and the mayors of the towns where the children had lived, their members are researching historical sources in order to place commemorative plaques in local schools with the names of the Jewish children that were deported and killed in the extermination camps. Their work is based on a comparison of school registers, municipal, departmental and police archives and various lists (lists of names from concentration camps, lists of deportees and testimonies from survivors). The research carried out by the members of the AMEJDAM has made it possible to find the names of more than 80 children of primary schools, colleges and lycées in the Alpes-Maritimes (<http://www.amejd.com/>). During the research at the Lycée Albert Calmette in Nice, the AMEJDAM discovered that 16 girls from the Lycée (which was an all-girls school at the time), were deported to Auschwitz during the German occupation. Thanks to their work, a memorial plaque with the names, ages and numbers of the deportation trains was erected in the schoolyard of the Lycée. A few years ago, the high school's philosophy teacher, Isabelle Sieurin, carried out a project on remembrance and memory with her pupils: she studied the school registers to find the traces of the girls named on the memorial plaque and to reconstruct their lives. By doing so, she stumbled on the name of a certain “Eva Freud, born on September 3rd, 1924, in Berlin. Address: Grand Palais, 2, boulevard de Cimiez,

Classe Première A, half boarder, fathers' profession: photographer, school leaving date, 21st of april 42s" (school register Lycée Calmette, Nice).

## A JEWISH LIFE IN THE 1930S – VOICES FROM THE PAST

Wondering whether the girl was related to her illustrious homonyme, Isabelle Sieurin started investigating the archives in Nice. The historical documents showed that Eva Freud was in fact Sigmunds granddaughter. Eva had arrived in Nice in 1934 at the age of ten, after the family had to leave Berlin because of the nazi persecution. The family moved into the Grand Palais, a large rental complex from the beginning of the century, where many Jewish refugees lived in the 1930s. (Sieurin 2018). From 1934 to 1942, Eva attended the Lycée Calmette. In 1938, the Freud family received French citizenship and was deprived of it in 1940, when Pétain's July laws were applied. In 1942, Eva had to leave school, and prepare her baccalaureate under a false identity to escape persecution. In 1943, when the Germans reached Nice and the deportations began, most of the Jews had fled Nice or were in hiding. A very close friend of Eva, Hélène Dub, a young Czechoslovakian Jewish orphan, who had been taken in by Eva's parents for six months in 1939, had left Nice to hide in the mountain village of Thorenc. Hélène had found a job as a teacher's aide in a Parisian Montessori school, which had been withdrawn to Thorenc during the occupation, and for almost two years, until 1944, Eva corresponded on a regular basis with her friend (Sieurin 2018). Both girls escaped the nazi persecution, but Eva died on November 4<sup>th</sup>, 1944, in Marseille, during the operation of an abscess, following an illegal abortion. At the Lycée Calmette, Evas's destiny had crossed with the life of the young Simone Veil, future Magistrate, French Minister, and first President of the European parliament who would write history in the 70s when fighting for the legalization of abortion<sup>3</sup>. Veil alludes to Eva in her autobiography. "One of the Freud sons had settled in Nice as a photographer; we became close friends with his daughter, Eva, an intelligent and charming friend. She attended our high school and belonged to the same Girl Scout group as us. A little older than me, she had a tragic fate, as she died soon after, far from her parents, who had left for England" (Veil 2012, p. 26). Veil doesn't specify the nature of Eva's tragic death. But one can hardly deny the link with her commitment to the legalization of abortion for which she fought as a Health Minister of the French government under the presidency of Valéry Giscard d'Estaing. At the origin of the Veil Act, she promulgated a historic law in 1975 which decriminalized abortion (Ministère de la santé 1974).

Eva's biography illustrates, in a seismographic way, some of the major events of the 20th century. It serves as a prism to understand, reflect, and analyse history for the pupils and students enrolled in our project. Shedding light on the situation of European Jews who were in exile in Nice or on the Côte d'Azur during the occupation of the Third Reich, the destiny of Eva Freud is also highly interesting for students and pupils, because it allows them to see what life was like for young girls and women in the 1940s. It illustrates what their school life was like and shows the

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<sup>3</sup> Simone Veil was arrested in 1944 by the Gestapo, at age 16, the day after passing her baccalaureate at Calmette, and deported to Auschwitz with her whole family. While she survived with her two sisters, her parents and brother died in the camp.

problems of their daily existence. It also reveals how they handled the political situation with its' existential challenges. The archives of the Lycée Calmette and the letters Eva and Hélène wrote made it possible to relive their experience and to trace and reconstruct history in a personal way, helping the participants to project themselves in the past and reflect on the presence. In addition, the study of Eva's biography enabled students to learn about a wide range of approaches in language, literature, cultural and media theory and didactics, thereby promoting transversal and transdisciplinary knowledge integration. The project design also strengthened the interrelations between domains of professional knowledge (subject science, subject didactics, and pedagogy) as well as between theory and school practice and therefore helped to promote the coherence of the teacher education training for the participating student teachers.

## **DESIGN AND AIM OF THE PROJECT**

The project was designed as a collaborative study program with several co-teaching sessions. It had started in autumn 202 and was led by a philosophy teacher at the Lycée Calmette in Nice, Isabelle Sieurin, who has been working on the memory of Eva Freud for several years (Sieurin 2018, 2020, 2021), and myself, professor at the German department of the Université Côte d'Azur, and teacher educator at the INSPE Nice Toulon, the university school of education. Each group of participants – students and pupils – worked with their teacher on a specific program during the two semesters of the course. Some sources were common to both groups and constituted the working material for everybody, based on which the two groups were performing research, presentation and writing tasks. Other documents, mostly research articles, were specific to the student cohort and allowed them to acquire and strengthen academic competences. The participants were 36 Upper Secondary school pupils of the Lycée Calmette in Nice who had chosen the specialty HPL (Humanities, Literature and Philosophy) for their final secondary school exams. The pupils spent 4 hours a week on the project. The classes were divided between French Literature and Philosophy. The student cohort consisted of third year students of the binational teacher education bachelor Nice-Freiburg who planed on becoming French and German teachers, as well as German and Austrian Erasmus teacher education students, spending their year at the University Côte d'Azur. The binational class was composed of 8 French students and 6 German students who all had teaching and international mobility experience. They worked on the project in different courses, taught in both semesters (Literature, Philosophy, civilization, oral and written expression). Marking was both individual and for group work.

The pedagogical interest for the pupils laid in the valorization of their “Humanities, Literature and Philosophy” specialty through a creative and memorial project. They were able to enhance their written competences through the composing of choruses and dialogues for the theatrical performance relating the life of Eva and had the opportunity to exchange with post-baccalaureate students in view of their orientation. The project also allowed pupils an opening to the content and methodology of academic work.



As for the students, the added value was to participate in a project in collaboration with a French school and to acquire a pre-professional experience. Students had the opportunity to experience the project-based pedagogical approach that they will have to implement later in their own teaching, and to share their linguistic, intercultural, and pedagogical skills. They were familiarised with collaborative and cooperative learning formats and transdisciplinary teaching. They were also asked to reflect on their own practice as learner and teacher. In addition, the students were encouraged to exchange with pre-baccalaureate students and provide feedback for their future university orientation. The project aimed specifically to valorizes the Humanities, Literature and Philosophy specialty in Upper secondary Education, leading to a literary and language baccalaureate which, in France, is much less prestigious than the STEM specialisation. Bringing together Humanities pupils and language teacher students helped the pupils project themselves in a positive way. Most of the French students in the cohort had themselves opted for a literary baccalaureate when they attended the Lycée. The skills acquired during their last two years of schooling (notably in terms of philosophical reflection and analysis of texts) were useful in the philosophy and literature courses at university. The students realized that their school education prepared them directly for the demands and expectations of the university and were able to talk to the pupils in a positive way about their orientation choice.

## **AN INNOVATIVE APPROACH – KALEIDOSCOPIC THEMES AND CREATIVE TASKS**

The high point and main output of the project was to be a performance at the *Grand Chateau de Valrose* theater, the site of the university's president. For this final assignment, the participants were given a double collaboratif task. Based on the reading of selected letters exchanged between Eva Freud and her friend Helène, during the two years when they were both hiding from the nazi prosecution, they were asked to create a public theater representation. At the heart of the project, the forementioned correspondence between the two young women evokes their dreams, feelings, and hopes, their love, their vision of the political situation and the danger that threatens them. The epistolary exchange combines literary and philosophical reflections, personal anecdotes, intimate descriptions of everyday life and existential questions which appeal to today's reader. The pupils and students were also invited to write fictive choruses, dialogues and creative texts relating Eva's life, inspired by a variety of textual and iconographic sources. The project aimed to enhance written expression through a creative, learner-centered approach. By reading the letters exchanged between two young women during the German occupation in Nice and studying authentic historical documents, pupils and students were encouraged to reflect on the expression of “sensitivity, the relationship of human beings to themselves and the question of the self” as well as on the themes of “history and violence”, according to the official program of French Upper Secondary School (Philosophy program of the final year, *Ministère de l'Education Nationale*, eduscol 2022). The aim of the project was to broaden the perspective of the participants and to create meaningful relations between the singularity of Eva Freud's destiny and the historical and cultural context. During the courses, the participants had therefore been introduced to philosophical, cultural, and sociological theories that helped them

to understand the symbolic meaning of Eva's life. In a series of lessons, the participants acquired historical knowledge and awareness about the French Riviera as place of refugees and exile communities and learned about Nice as occupied zone in the 1930s and 40s. During the first years of the war, Nice and the Riviera saw an influx of political emigrants and Jews, French and foreigners, who hoped to find a safer refuge in the non-occupied zone, from where some would try to embark towards less exposed countries. In this climate of war, of will of survival and despair, a precarious exile colony was established, waiting for departures that were constantly postponed. The coastline, from Marseille to Menton, became a land of waiting, as described in the exile literature of that time (Flügge 1999), an intermediate place between two cultures, between two exiles and for many, without them knowing it yet, a simple detour before the Shoah (Mencherini, 2007). The group was also introduced to the remembering of the Shoah, according to the history program for the final year of Upper secondary school which stipulates that "the pupil learns how knowledge of the past is constructed from traces, archives and testimonies, and thus refines his or her critical mind" (*Ministère de l'éducation nationale*, 2019). Based on the memory of a place and its school archives - the Lycée Calmette as a place of remembrance of the Jewish children of the Alpes Maritimes who were deported and murdered in the Nazi death camps - pupils and students discovered the memorial topography of their very own environment, their school. The study of academic work on the topography and places of memory (Nora 1984, 1986, 1992), the sociological approaches of cultural and collective memory (Halbwachs 1925; Nora 1978; Assmann 1988) and the construction of family memory (Welzer 2002) helped the pupils and students to understand how a biographical narrative relates to its historical dimension. The participants also acquired insight into the female condition in France in the 1940s. They researched the lives of young girls and women during Occupation, learned about school life for girls in the 40s and were acquainted with the abortion ban and its consequences for women. They realized that Eva faced a double clandestinity: not only did she have to live on the margins because she was Jewish, but she was doubly marginalized because of her abortion, an act considered a crime at the time. The Vichy Regime applied the 1920 law on abortion so rigorously that a woman, Marie Louise Giraud, was beheaded, one year earlier on July 30, 1943, for having carried out abortions, the Marshal Pétain having refused her grace (Olivier 2002).

## **TWOFOLD ROLES – DOUBLE PERSPECTIVE ON LEARNING AND TEACHING**

As starting point, a transcription of the Eva's correspondence was given to each student and pupil at the beginning of the course, to familiarize themselves with the life, the writing style and the personality of the two friends. Those letters came from the archives of the Library of Congress in Washington where Mrs. Sieurin had stayed in 2018 to study the *Oliver and Henny Freud collection* (Library of Congress) The papers of Oliver Freud, photographer, engineer, and son of Sigmund Freud, and Henny Fuchs Freud, artist, were given to the Library of Congress by Leli Freud in 1972 and by the Sigmund Freud Archives between 1952 and 1963. They contain correspondences, subject files, writings, photographs, and related material pertaining primarily to the emigration of family members from Austria und Europe during the

Jewish Holocaust. Also features a transcript of Oliviers recollection of his father, Sigmund Freud. For the project, 20 representative letters were chosen, mostly from the correspondence between Eva and Hélène, but also some from her fiancé to her parents. Students and pupils were also given photographs of Eva and her family, pictures of the school, of Nice in the 1930s, of Eva's grave and reproductions of an observation book that her parents completed to keep record of their toddlers' progress. These documents came from the Library of Congress, the departmental archives of the Alpes-Maritimes, the Marseille cemetery as well as from the old register of the Lycée Calmette. Before the initial meeting between the students and pupils, they both explored this material in groups. They were asked to pick several pictures, write short texts from the point of view of the characters represented and read the letters to each other. During the first joint meeting at the Lycée Calmette, the pupils presented their school as a place of memory for the Shoah in Nice. They gave lectures on the concept of places of memory, the history of the Lycée, the biography of Eva Freud and the work of Simone Weil. They also distributed a handout with questions and interrogations about their presentation, adopting the role of teachers. The students worked in groups and presented their answers. This change of roles worked as an icebreaker and helped establish contacts and exchanges between the groups. The participants were then introduced to the President of the AMEJDAM (Association for the Memory of Deported Jewish Children of the Alpes-Maritimes), Mrs. Merowka, who explained the historical research process to find the names of the 16 Jewish pupils from the Lycée Calmette who were deported to Auschwitz, in order to affix the commemorative plaque that can be found in the school yard (<http://www.amejd.com/index.htm>). In the following discussion about the didactics of memory transmission, the pupils and students were able to exchange and to point out the specifically intercultural (French-German) dimension of memory.

#### *Epistolary esthetics – the absence of the writer as calling from the past*

During the following separate course sessions, the pupils and students worked on the letters by answering certain questions about the communication model inherent to a correspondence, the role of the recipient of the letters and the function and characteristics of letters. The students read academic work (Rousset 1962), familiarized themselves with the intimate form of communication that the epistolary discourse represents and learned about the cult of friendship that underlies the exchange of letters. They reflected on how the text of the letter represents the trace of the writer and its imprint and how it replaces the body and the physical presence of the recipient. They considered the dialectic of presence and absences, the double characterisation of the recipient and the writer that the letters allow, and the way they bridge the factual and psychological distance. They also analysed the floating boundaries between epistolary and autobiographical writing. This work on literary concepts helped them to appreciate the aesthetic dimension of the epistolary writing and to relate the personal story of the two young women to poetical and narratological issues. In the following session, the participants had to choose which letter they wanted to read at the final representation. The students were asked to designate the chosen letter and to argue and explain why they related to this specific piece of writing. By exploring the identificatory potential of the letters, they became aware of the singular yet representative situation of the two women. After having

chosen the letters, the persons that were to read them, practiced the reading of the letters in the group and were given feedback. It wasn't an easy exercise to open to the emotional tone of the letters in front of the other students. Some of the participants had to overcome their shyness and learn to confide in their acting. For the group, it was a practice in trust that was reflected afterwards in relation to school situation. How can tasks and situations in class which bring the pupils out of their comfort zone being introduced? How to channel feedback in a group so that it remains constructive and doesn't hurt the feelings of the participants. After having given their opinions and impressions, the students worked on academic studies on scenic expression and their pedagogical implications (Aubert 2019; Lattion, & Papaux, 2003).

### *Teaching history – creating a living memory*

The next course session was devoted to the history of Nice, centered on a documentary on Nice under the occupation (<https://vimeo.com/461756889/8bee73feae>). Its' aim was to give a historical background to Eva's life and to analyze how the political events are woven into her story like a watermark. The documentary related the complex history of the city of Nice and its double Italian and German occupation (Bonneau 2020). As the documentary was in French, the students worked on it in binational groups of two. They were asked to watch the film, to do a resume of their part, to establish a German-French glossary with historical terms and to didacticize their part by formulating three questions about the events which the film described. In the following debate, they discussed the historical content and its didactical potential. Why use authentic documents in class? (Gilmore 2007). What can be their role for a communicative approach in FLE? (Berard 1991). How to create tasks based on authentic documents according to a neo-communicative paradigm? (Meißner & Reinfried 2001). And which were the impediments and facilitators that could be found in the video? This change from learner to teacher perspective proved to be one of the most important coherence vectors for the students and helped them to strengthen their professional awareness.

After acquiring the necessary historical competences and knowledge, the participants devoted themselves to the first important creative task, a writing assignment on the life of Eva Freud, based on various documents. A handout with links to family and school photos, school records, excerpts from parental diaries, administrative documents such as visa applications or death certificates served as inspiration for creative texts that combined historical, biographical, and imaginary elements. For this creative writing task, the participants were free to imagine any format and genre they liked to explore. The previous work on the epistolary and autobiographical genre helped them to find their own approach. The texts they wrote were fictional diary entries, journalistic articles, poems, graphic novels, biopics, eulogies and many more. A peer feedback session was then scheduled for the texts and creative outputs. This was the occasion to discuss the difficulty of evaluating creative work in school and the use of a criterion referenced grid, rather than purely impressionistic feedback (Capron & Piccardo 2001; Vincent-Lancrin 2019, Martin, Lefrançois Guichard, Tapp & Arsenault 2016). The second co-teaching session was then programmed to take place at the university. After a reception by the dean of the

faculty, which was an opportunity to talk about university orientation and study choices, the two groups alternated and read the chosen letters in front of everybody. The participants commented the presentations and discussed the specificity of the different letters. They then read some of the creative texts they had produced and explained their literary and stylistic choices for the group. The students had been instructed to apply and reactivate what they had learned about evaluating and giving feedback on creative writing, and presented the principles to the pupils. The pupils and their teacher then edited the creative texts to make a video installation which was to be projected at the final representation in the theatre as background for the scenic representation of the letters.

### *Teach what you preach – coherence through changing of perspective*

In a further step and with the aim of a coherent progression, the student participants were to relate the cultural, historical, and literary content knowledge they had acquired to their future work as foreign language teachers. They were to plan a series of lessons based on various documents (photos, text, letters, administrative documents) relating Eva's life for the group of pupils. The aim was to use their subject-specific text expertise as a basis for the selection and didacticisation of authentic texts in the classroom and for the development of text-based tasks. The goal was to help them to activate their subject-specific didactic knowledge by designing teaching and learning arrangements that take into account heterogeneous learning requirements in particular. The students were asked to determine the class level, the number of teaching units, the teaching objectives, and to make preliminary diagnostic considerations regarding the pupils' prior knowledge, language level, and reading socialisation. They had to formulate a problematic for their pedagogical project and to describe the language activities, the social forms of work, the homework, and the evaluation methods for the intermediate and final tasks. And finally, they were required to propose a criteria-based selection of possible readings in order to create a dossier for a teaching unit with supplementary materials. The focus of this unit was on coherence through the theory-practice link with an application-orientated task. The students should not only acquire and reflect on theory-based specialised knowledge, but also explain it and transfer it into a learner-oriented form. The aim was to demonstrate the relevance of scientific findings for the appropriate design of school topics and to recognise that narrowing down a topic for treatment at school requires prior understanding of its complexity. The work was to be done in German-French teams and they were to confront their pedagogical culture and discuss the differences, while elaborating the project. Once they were done, they had to present it to a fellow team for feedback discussion and possible revision. The transnational orientation of the project, which presupposed an awareness of and perspective on one's own pedagogical culture, was one of the most important coherence vectors of the project. As future teachers, the participants must be able to adapt quickly to other people on a daily basis, grasp different ways of thinking, recognise problems of understanding and communication and put their own forms of perception into perspective. The aim of the collaborative project was therefore to develop the ability to look at oneself through the eyes of others. Working in binational groups and the opportunity to hold and test teaching units in a French secondary school offered the students a unique chance of reflective practice.



### *Out of school teaching – the reality of knowledge as experience*

The third joint meeting and co-teaching unit was an educational and memorial trip to one of the places where Jewish families had been arrested in the 1940s. The filed trip went to the village of Thorenc where Eva's friend and correspondent, H       Dub and one of the Lyc    's students, Paulette Molina, were taken into custody in October 1943. While H       escaped, Paulette was deported and died in Auschwitz. Mrs. Merowka, the president of the AMEJDAM, accompanied the group and gave a presentation about the commemorative plaque of the hamlet and the Jewish families that had hidden in the village. Between 35 and 40 families from Grasse, Cannes, Antibes, Nice, Menton and Monaco, often registered under false names in the hotel registers, had taken shelter in Thorenc, in hotels but also in certain rented villas and private homes, even before the invasion of the free zone. Thorenc also was home of the so-called colony of Thorenc where Moussa Abadi and Odette Rosenstock, the founders of the Marcel network, a Resistance group, hid Jewish children. It constituted one of the main rescue circuits in the southern zone. With the help of the Bishop of Nice, Monsignor Paul R       and several protestant pastors, 527 Jewish children were rescued in the Alpes-Maritimes between 1943 and 1945 (Coleman 2012). This excursion to Thorenc gave life to the academic study of history, remembrance and memory practices by allowing the participants to experience first-hand how the past is inscribed in the topography of a place: in front of the stele commemorating the deported Jews and their rescuers, *Les Justes*, the mayor told the participants how his grandfather, a carpenter, had built a concealed cabin under the wooden floor of his house to hide a family who had thus escaped deportation. The pupils and students also delved into the past when visiting a former hotel where Mme Merowka told the story of a little boy who was hidden in a cupboard by his family before the Gestapo raid. His mother had slipped a note with her sister's telephone number into his pocket before the whole family was deported. The hotel owner found the boy, hid and sheltered him and contacted his aunt after the war, who picked him up and took him in, as his family had perished in the concentration camp. Decades later, the now grown-up boy visited the village in the footsteps of its tragic history. Especially in the French-German constellation of the group, walking through the memorial topography of Thorenc was extremely impressive and heightened the students' awareness of the continuing impact of historical testimony much more than purely theoretical lessons could have done. After this excursion and with reference to the scientific articles about memory that they had previously worked on, the students were asked to present the main ideas of Jan Assmann's article on collective memory and cultural identity (Assmann 1988), to compile a French-German glossary on the subject and to write a personal text about a place of memory reflecting the concept. These places could be existing memorials or places they thought emblematic for their country's national memory culture. They were then to present it to the class and explain the specific national context to the group. At the end of the project in May 2023, a public theatre performance with the reading of selected letters and creative texts took place in the historic theatre of the *Chateau de Valrose*, the seat of the University of the C       d'Azur, attended by more than 150 spectators. To prepare for this performance, the participants met several times for joint rehearsals, created posters and flyers, wrote invitations and presentation texts, and contacted the local press. This promoted social learning processes such as



independence, cooperation, and a sense of responsibility. Sharing their involvement with the project gave the participants self-confidence and encouraged their self-expression, creativity, and motivation. The holistic learning process increased their ability to deal with criticism and strengthened their empathy (Liebau, Klepacki, Zirfas 2009).

## **ENHANCING COHERENCE THROUGH TASK-BASED COLLABORATION: FINAL SYNTHESIS**

The aim of this article was to illustrate how a collaborative project such as the one implemented in 2022/23 at the Lycée Calmette and the University Côte d'Azur can increase the coherence of a competence-oriented teacher training. The multicultural learning environment, which promoted continuous linguistic and cultural immersion, enabled future teachers to acquire knowledge about the target language and culture studied, and to sharpen their critical reflective view of their own culture. The continuous reflection on the ways in which the topics and issues had to be discussed, negotiated, and creatively reconstructed with learners (and future teachers) from other national or institutional settings fostered key competences such as change of perspective, tolerance of ambiguity and critical judgement. In addition, the use of creative learning formats and communication tools, which the student teachers utilised in their role as learners in the course, strengthened their information, data and media skills. The participants felt prepared for a reflective use of these learning and strategies in their own future classroom – for and with linguistically and culturally heterogeneous learning groups, be it within national borders or beyond. In final interviews with the student participants, they were asked specifically about the perceived coherence of content, domains, and processes. Of the 13 students, 12 underlined the positive effects of the transdisciplinary approach which had helped them to adopt new and productive perspectives on subject-specific content, such as history and literature. 11 out of 13 students emphasised that the project work had helped them to connect the different areas of teacher education and to see relationships between subject-specific, subject-didactic, and educational science content. Another 11 out of 13 also appreciated the successful interacting between theory and practice, which was promoted by the alternation between learner and teacher perspectives. All participants confirmed that the project's creative and collaborative approach was motivating and had helped them to reflect on their professional attitude and vocational awareness (personal interviews, Nice, June 2023). In conclusion, it can be said that the integration and connection of different knowledge domains and the project-related link between subject science and didactical knowledge as well as between theory and practice, which was the aim of the collaborative school-university project, represents a success factor for perceived coherence in teacher training.

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# HARNESSING DISTRIBUTED PEDAGOGICAL LEADERSHIP CULTURE IN PRESERVICE TEACHER EDUCATION

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## ABSTRACT

*Preservice teacher preparation lays a firm foundation in the training of future teachers (Afalla & Fabelico, 2020) who can nurture the 21st-century learner's potential. Consequently, teacher leadership generates competencies that teachers need, and how influences learners' achievement (Brecht, 2022; Heikka et al., 2021). The study aimed to explore how distributed pedagogical leadership culture is harnessed. The main research question: How is distributed pedagogical leadership practice perceived by preservice teacher education stakeholders? A case study design was employed in a public preservice teacher training college in Kenya. A purposeful sampling strategy was used to identify the 32 participants, consisting of the principal, deputy principal, and tutors. Content data analysis of the qualitative data was employed to analyze the data collected using semi-structured interviews inquiry and focus group discussions with the administrators and teacher educators were analyzed using Atlas.ti 9 software. The findings revealed that leadership culture was largely perceived to be a delegation of responsibilities between teachers and students. However, the principal and the senior management team were largely involved in the decision-making and enactment of leadership roles. The study recommended further exploration of the need to encourage teachers to participate in leadership that can motivate future teacher leaders.*

## INTRODUCTION

With the emergence of the COVID-19 pandemic, teacher preparation programs and curriculum practices are shifting from traditional approaches and training to empowering the classroom teacher to be a facilitator of learning. Through the distribution of pedagogical leadership responsibilities, a working teacher is empowered to have effective classroom control and management, effective use of instructional methods and strategies, and active engagement of the learners in the pedagogical activities (Álvarez-Arregui et al., 2021).

Preservice teacher education programs lay a foundation for nurturing and preparing future teachers who are competent enough to lead the pedagogical process in their classrooms (Afalla & Fabelico, 2020). Pedagogical leadership is an act of leadership where the teacher's central task is to improve teaching and learning for quality learners' achievement in the classroom (Alameen et al., 2015; Cheah & Lim, 2022). According to Jäppinen and Maunonen-Eskelinen (2012) empowering and honing future teachers to be leaders through distributing pedagogical responsibilities influences their actions and thoughts and helps in providing changed work experiences and planned activities through collaborative learning.

However, the practice of distributed pedagogical leadership is a new concept that has not been given empirical research prominence in teacher education contexts. The concept is mainly prominent in early childhood education settings in Europe and some parts of Asia. Therefore, the purpose of this study was to explore distributed pedagogical leadership practice in a preservice teacher training college in Kenya.

Furthermore, the study intended to develop an in-depth understanding of the perceptions of the preservice teacher education stakeholders on how sharing of pedagogical leadership responsibilities with teacher leaders, and teacher trainers helps in nurturing and harnessing future teachers as leaders. Additionally, the researchers sought to understand the perception of the stakeholders on the enactment of the leadership practice in creating interdependence within the pedagogical spaces.

## **BACKGROUND**

### **Distributed pedagogical leadership (DPL) practice**

DPL is understood as the interdependence between administrative leaders and teachers in the enactment of leadership practice for pedagogical improvement in the learning community (Heikka, 2014; Heikka et al., 2013). DPL practice is a leadership concept that involves human capacity building of the whole members of staff in the community of practice through creating a zone of interdependence between educational stakeholders being involved in leadership enactment (Heikka et al., 2021; Yang & Lim, 2023) for quality teaching and learning improvements. When formal and informal pedagogical leadership roles are distributed, teachers and teacher leaders collaborate in performing similar tasks and duties in their teams (Bøe & Hognestad, 2017).

Through the distribution of pedagogical leadership responsibilities to multiple stakeholders, teachers are encouraged through empowerment to participate in crucial collegial decision-making processes in a synergic collaborative engagement within their teams (Bøe & Hognestad, 2017). As pedagogical leaders, principals, teacher leaders, and teachers are not only curriculum implementers, and facilitators of learning but also are essential decision makers (Heikka et al., 2021; Sergiovanni, 1998). Teachers take leadership responsibilities for their shared understanding of the strategic vision, aims, and methods of instruction for the learners (Jäppinen, 2012).

To enhance and sustain a collaborative working environment in a learning community, the dimensions of distributed pedagogical leadership are the most



important elements of the enactment of this concept. For this study, to fully understand the concept of DPL especially in teacher education contexts, we adapted these dimensions as advanced by Yang and Lim (2023, p. 5) as follows: 1) teachers involved in strategic planning; 2) encouraging sharing participation, providing sufficient resources; 3) teachers sharing authority in decision-making and developing leadership tasks; 4) designing functions with teachers who facilitate pedagogical reflection within the teams; and 5) teachers co-creating procedures, structures, and plans for efficient practice of distributed leadership.

Pedagogical leadership responsibilities allow teachers to lead teaching and learning processes for pedagogical development and improvement (Heikka et al., 2021; Heikka & Suhonen, 2019). Hence the nurturing and development of teacher leadership culture within teams and in the learning community (Heikka et al., 2021).

## **Teacher Leadership**

Teaching is a leadership process through which pedagogical responsibilities are shared within a professional learning community of teachers and learners (Katzenmeyer & Moller, 2001; Sergiovanni, 1998). According to York-Barr and Duke (2004, pp. 287–288), teacher leadership is ‘the process by which teachers, individually or collectively, influence their colleagues, principals, and other members of school communities to improve teaching and learning practices with the aim of increased student learning and achievement’.

Traditionally, the main role of a teacher has been classroom teaching of a cohort of learners from one year to the next. The rise of distributed and pedagogical leadership responsibilities has seen a paradigm shift in transforming teachers' roles from individual to collective and collaborative participation in teaching and learning improvement (Chen, 2023). As opined by Heikka et al. (2018) teacher leadership practice is a significant perspective in a learning organization where the influence of the teacher extends beyond the four walls of the classroom.

Teacher leadership culture in a school helps in identifying classroom teachers as leaders of learning through shared responsibility and collegial decision-making processes (Meyer & Bendikson, 2021). Teacher leadership is empowering working teachers in the classroom by giving them autonomy and instructional freedom to decide on the right pedagogical processes that are beneficial to the learner (Katzenmeyer & Moller, 2009). Teachers leading the pedagogical process enhance collaboration with professional stakeholders and provide quality discourse and constructive curriculum implementation for the achievement of pedagogical improvement (Fernández Espinosa & López González, 2023; Meyer & Bendikson, 2021).

Empowering teachers as leaders is considered a key strategy for pedagogical improvement processes (Kılınç et al., 2021). Through empowering teachers as leaders, they accept more responsibilities beyond their classrooms to help mentor their novice colleagues to achieve success for all their learners for quality

improvement (Katzenmeyer & Moller, 2001). However, for teachers to be leaders, they must accept to lead others for pedagogical improvement (Chen, 2023).

Conversely from the findings of some teacher education studies, when teacher leadership culture is not well understood within the community of practice, there is a likelihood of facing multifaceted pitfalls or challenges, for instance, the collegial relationship between teacher leaders and teachers may be altered (Heikka et al., 2018), lack of support from the administrative leaders, everyone is seen as a leader and some teachers do not turn out to be the best leaders (Fairman & Mackenzie, 2015; Gningue et al., 2022; Heikka et al., 2021; Katzenmeyer & Moller, 2009).

A considerable body of literature shows that by distributing pedagogical leadership responsibilities, school leaders delegate certain formal and informal responsibilities to teacher leaders (Ali et al., 2021; Arden & Okoko, 2021; Lovett, 2023; Muijs & Harris, 2003) to promote and achieve pedagogical improvement (Heikka et al., 2021; Yang & Lim, 2023). However, there is a novelty in this research, namely focusing on how distributing pedagogical leadership practice among teacher educators can play a role in harnessing teacher leadership culture in the preparation of future teachers as leaders.

This practice of sharing pedagogical leadership responsibilities with multiple professional teams in a community of practice has not been empirically researched in pre-service teacher education contexts in the world. Additionally, various gaps have been identified in literature and practice.

## **THE AIM OF THE STUDY**

This study intended to address some of these gaps by investigating the perceptions of the teacher education stakeholders on the implementation of the distributed pedagogical leadership practice. Similarly, we purposed to understand how the concept is used in harnessing teacher functions, tasks, and responsibilities by various stakeholders.

## **RESEARCH QUESTIONS**

The following overarching research questions directed the study:

1. What is the perception of teacher education stakeholders on distributed pedagogical leadership practice teacher leadership culture
2. How is teacher leadership practice harnessed among teacher trainers?

## **METHODS**

### **Research design**

A research design is a logical sequence or process that links data collected in the study and the conclusions drawn as results of the research questions and findings (Yin, 2018). To answer the two overarching research questions, we collected

relevant data and analysed the results guided by an interpretative case study qualitative research design (Levitt et al., 2018; Yin, 2018).

A qualitative case study was conducted since several variables were operating in a single study (Cohen et al., 2018). A case study provided unique examples of people in their real situations to enable the readers to draw an understanding more clearly through simple presentation of data (Cohen et al., 2018; Creswell & Creswell, 2018).

According to Cohen et al. (2018), an interpretative case study helps in developing nuanced conceptual categories inductively in data collection and interpretation to help in examining the study's initial assumptions. The preservice teacher education contexts are complex, unique, and dynamic, therefore, the study investigated and reported the implementation of the distributed pedagogical leadership practice in real-life situations. Unfolding interactive events were intended to generate evidence of enhancing teacher leadership culture through collaborative and participative engagements of the stakeholders (Cohen et al., 2018; Creswell, 2013).

### **Sample and sampling procedure**

The sample of the study engaged 32 participants who voluntarily agreed to participate in the study. The targeted participants were identified through simple random purposive sampling (Cohen et al., 2018). Purposeful sampling was used to allow the researchers to identify the cases to be included in the study based on their judgment of specific possession of particular characteristics being sought in the study (Teddlie & Tashakkori, 2009). Each member of the population in the setting had an equal chance of being selected as participants in the study (Cohen et al., 2018).

### **Ethical considerations**

Before the data collection process in Kenya, ethical approval was obtained through the university's Internal Research Board (IRB). Permission to access the learning institution and the targeted participants was sought and granted by the Ministry of Education and the principal of the teachers' training college. Participation in the study was voluntary with the participants assured of their anonymity and confidentiality of the data collected (Yin, 2018). The participants' awareness of the voluntary nature of their participation was ensured through signed consent forms (Creswell, 2014).

### **DATA COLLECTION**

Data from the participants was collected using multiple sources to establish data triangulation and corroboration (Cohen et al., 2018; Yin, 2014). For the administrators and teacher leaders, individual, face-to-face semi-structured interviews and other informal conversations were conducted within the institutions. For the teacher trainers, focus group discussions (FGDs) were conducted with minimum interference with their professional responsibilities.

## DATA ANALYSIS

The verbatim semi-structured interviews and FGI transcripts were coded within Atlas.ti9 program and analyzed through both inductive and deductive content analysis approaches. First, to allow for easy comprehension of the research purpose, the data sources were chunked into smaller units and further related to the fieldnotes recorded those that have emerged with significance during the data collection process (Cohen et al., 2018).

In content analysis, we defined the units of analysis, paraphrased the relevant passages of the texts in the transcripts, reduced by deleting duplicated meanings as well as combining and integrating paraphrases in the data, put together the new statements into category systems, and finally revising the category systems into the original data (Cohen et al., 2018, p. 676).

As postulated Creswell's (2014) guidelines for qualitative data analysis provided a guide: read through the transcripts, labelling portions of each transcript as emerging codes and categories by referring to the research purpose and the conceptual framework, to aid in the eventual tabulation of themes culled from the multi-level structure of codes/categories.

## FINDINGS

The findings from the study were directed by the two overarching research questions and guided by the related reviewed literature as follows:

### Perceptions of the stakeholders

DPL comprises all collective thinking, professional, and responsible leadership actions where stakeholders in the learning organization are engaged to enhance their ability to create a conducive and productive pedagogical space for multi-professional responsibilities for academic improvement (Jäppinen, 2012). The perception of the teacher leaders is that synergy is first and foremost created by the principal. In an interview with a dean of students, she asserted:

[...] It starts with the principal. He also teaches so that he can set an example. When he teaches, he can also be able to know how the students are. All of us, from the principal downwards to the tutors are all leaders. We are all offering some pedagogical leadership in one way or another. Either you are a subject tutor, a subject head, or a head of department (*Dean interview*).

Leadership enactment and interdependence among the stakeholders was vital in enhancing collective work and for both leaders and teachers to achieve the desired common goals and set visions (Heikka et al., 2021). The principal, teacher leaders, teachers, and teacher-trainees engaged in fostering curriculum reforms, improving the academic achievements of the students, and cooperating and participating in collegial decision-making processes (Heikka & Suhonen, 2019). A principal reported as follows:

I can say that our teachers are empowered. One is they have very important content mastery. We don't allow a teacher to go to class without knowing the information he/she is supposed to relay to the students. So, the teacher is first of all qualified, and also in that particular area, teachers undergo various training and seminars on the new Competency-Based Curriculum (*Principal interview*).

### **Harnessing teacher leadership**

Nurturing teacher trainers to be formal leaders harnesses teachers' self-esteem, self-efficacy, high motivation, and job satisfaction thus increasing performance, and this translates into improved learners' achievements (Katzenmeyer & Moller, 2001). In teacher education contexts, teacher leadership is nurtured to promote and enhance a more democratic, communal, and collaborative pedagogical space in the learning organizations (Grant, 2010). The excerpt below explains the distribution of responsibilities:

So, as far as teaching and learning is concerned, already the employer has laid out the protocol from the top where we have the chief principal to where we have the teacher trainers. In the classroom, we have the class representatives among the student teachers. In delegated or shared duties, we have tried to come up with the same collaborative and interactive engagements. So, we have what we call the head sections, and it is through the heads' section that we coordinate those areas, for example, the supervision of the departments and learning activities, the supervision of hiring facilities, so that where now we use the teacher leaders in those departments to coordinate all the activities (*Deputy principal interview*).

However, the teacher trainers felt like the distribution of responsibilities was not evenly distributed. In a discussion with the teachers, most of them felt left out of the pedagogical leadership activities. The excerpt below is an example:

Personally, sometimes I feel like I have no role in the class. The only thing I am supposed to be doing there is calling the students' class register and that's it (*Focus group interview – P1*).

[...] we failed because of lack of, in fact, I could say lack of cooperation from the administrative leadership. We would always be told that there are no resources. So, we have tried to put across some proposals that we need to so this, even sometimes going for seminars has not always been easy. They are like going for seminars outside the college, professionally organized seminars, it is not always easy, but when the chance arises, one of us is released (*Focus group interview – P4*).

As the nurturing and harnessing of teacher leadership among teacher trainers, certain challenges were experienced and there is a need to address them.

## **DISCUSSION**

From the results, the perceptions of the teacher education stakeholders were that teachers were not only curriculum thinkers and implementers but also producers of knowledge for continuous pedagogical improvement (Chen, 2023).

Nurturing and egalitarian engagement of teachers in collective pedagogical improvement, student learning, improvement of instructional quality, and collegial decision-making were executed through synergistic collaborations and effective communication processes (Chen, 2023; Nguyen et al., 2019).

Additionally, the findings also confirmed the findings from other related studies (Yang & Lim, 2023) that teacher shortage and understaffing greatly affected quality improvement during the enactment of distributed pedagogical leadership.

## IMPLICATIONS AND CONCLUSIONS

The results from the study have provided insightful nuances that may inform the restructuring of the initial teacher preparation programs, teacher leadership nurturing and empowerment as well as leadership distribution among stakeholders. Students as leaders in the pedagogical spaces emerged as the pinnacle of quality improvement with most participants appreciating the need to harness student leadership in preparing future teacher leaders.

In conclusion, we recommend that principals and teacher leaders should support and encourage both teacher trainers to participate in interactive learning through the provision of adequate time, and pedagogical resources for continuous professional development activities through even distribution of pedagogical leadership responsibilities.

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# A CLIMATE FOR CLIMATE EDUCATION: COUNTERING CLIMATE MISINFORMATION BY REFLECTING ABOUT SCIENCE

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## ABSTRACT

*How can you help young people to critically reflect on (mis)information about climate change? Addressing this issue is often challenging for secondary school science teachers. A teaching method that stimulates the critical thinking skills of learners towards climate science by reflecting on the Nature of Science (NOS) may be promising, because an understanding of how scientific knowledge is obtained, can scaffold learners' understanding of climate science. This kind of knowledge can provide learners with instruments to expose climate misinformation. The aim of this study is to investigate how a teaching method helping students engage in dialogues about NOS in the context of climate education, might help them to reflect about climate misinformation. Deploying the Educational Design Research (EDR) model, we develop, implement, and evaluate different prototypes of the teaching method in several research cycles, together with a Professional Learning Community (PLC). The teaching method developed is promising in terms of stimulating reflection on climate misinformation by dialoguing about NOS. Interviews of teachers and experts indicate that the teaching method contributes to dialogue about science through exercises that focus on interpretation, subjectivity, and empiricism. The approach poses some challenges, such as how to support teachers in creating a safe classroom environment and in moderating reflective dialogues.*

## BACKGROUND

The increasing popularity of social media facilitates a rapid spread of misinformation about climate change.<sup>1</sup> For this reason, young people must be able to deal with the information that comes their way as critical citizens.<sup>2</sup> A misunderstanding of science

can make learners susceptible to misinformation. For example, if learners fail to realize that scientific knowledge is subject to change, they will react with disbelief when they are informed about advanced insights. Furthermore, discussions between scientists can give learners the idea that climate change itself is being discussed.

Addressing Nature of Science (NOS) might help tackle this challenge.<sup>3,4</sup> In science education curricula, NOS stands for explicit attention to thinking about (scientific) knowledge, which includes an understanding of the distinction between observation and interpretation, as well as the role of scientific models and the social and cultural embedding of science.<sup>5,6,7</sup> Studies show that an understanding of this ‘epistemic’ knowledge plays a central role in young people’s understanding of science.<sup>8</sup> This kind of knowledge might provide young people with instruments to expose misinformation about climate science.<sup>9,10</sup>

When we focus on the interplay between misinformation about the climate crisis on the one hand and science on the other, we find ourselves at the intersection of climate education, media literacy, and scientific literacy. Climate education aims to impart substantive insights into the science of climate change and fosters an attitude towards sustainability.<sup>11</sup> Media literacy involves the capacity to locate, analyse, create, and critically evaluate media.<sup>12</sup> Scientific literacy encompasses an understanding of how knowledge is generated and its inherent value.<sup>13</sup>

Addressing scientific literacy in the context of climate education is important, as presenting accurate information to students is insufficient to dispel previous misconceptions. Furthermore, media literacy studies indicate that fact-checking does not erase false beliefs from the memory; the debunked facts continue to influence individuals’ thinking and reasoning, playing a role in decision-making.<sup>14</sup> Consequently, research underscores the need for a safe environment in which learners can reflect on what they deem reliable or unreliable.<sup>15</sup> This necessitates an approach that targets the foundation of beliefs, the conceptions about science. Based on these insights, we can assert that climate education requires an appropriate strategy to promote NOS insights among students.

Various strategies for teaching NOS have already been studied, these include the use of case studies or questions.<sup>16</sup> Studies on NOS education highlight the role ‘explicit reflection’ plays in eliciting an understanding about science. By means of a dialogical approach, learners reflect on their own views together; dialogue and argumentation enable learners to reflect on their own learning and the construction and evaluation of scientific knowledge.<sup>17,18,19</sup>

So far, little attention has been paid to the need to scaffold reflection about NOS in the context of climate education. The aim of this study is to investigate how a teaching method helping students engage in dialogues about NOS in the context of climate education, might help them to reflect about climate misinformation.

## RESEARCH QUESTIONS

**RQ1** Which principles must a teaching method meet in order to help students (14-16y) reflect about misinformation in the context of climate change education by focusing on dialogues about the Nature of Science (NOS)?

**RQ2** Which variables facilitate or hinder the implementation of the teaching method, in order to stimulate the learners' (14-16y) reflection about misinformation in climate science?

## DESIGN

The project deploys an Educational Design Research (EDR) methodology to develop, implement, and evaluate different prototypes of the teaching method in several research cycles, together with a Professional Learning Community (PLC) of 2 researchers, 6 teachers, 2 pedagogical supervisors and 5 experts.<sup>20,21</sup>

A literature review, surveys, and interviews with PLC-members result in design principles for the teaching method. Based on these principles, a prototype of the teaching method is developed that includes learning activities such as classification exercises, case studies, dialogue questions, and concept cartoons. The teaching method is tested and adjusted in 4 research cycles. Throughout these research cycles, 13 try-outs were conducted in 6 secondary schools and a secondary teacher training programme.

A mixed-methods design is used to answer the research questions.<sup>22,23,24</sup>

### Addressing RQ1

A literature study, semi-structured (group) interviews with PLC-members and surveys are used to primarily answer the development question (RQ1).

In the survey administered to teachers, various aspects were queried, including the extent to which and the way climate education, media literacy, and scientific literacy had been incorporated into their lessons so far. The survey also assessed teachers' perceptions of students' resilience to misinformation about climate change, their familiarity with the concept of Nature of Science (NOS), and their acquaintance with dialogue and reflection exercises during science lessons.

Furthermore, the survey inquired about explicit pedagogical needs identified by teachers and specific preferences regarding the format of the learning materials to be developed. Pedagogical supervisors and experts were similarly surveyed on these matters, but from their own specific perspectives.

## Addressing RQ2

Through in-depth interviews, we capture the experiences of teachers and pre-service teachers with the implementation of the teaching method (RQ2). Observations, derived from a qualitative analysis of recorded dialogues, were used as a starting point for these in-depth interviews.

Reflective dialogues that emerged in classrooms during the try-outs of the learning materials, were recorded through audio recording equipment. Subsequently, these recordings were transcribed and analysed. Employing a qualitative data analysis approach, a thematic list of topics was generated. Interview questions were then derived based on this list, probing teachers about their experiences with the implementation of the developed learning materials. Furthermore, flexibility was maintained to allow teachers to provide additional insights beyond the predefined topics.

Examples of topics examined include:

- taking on the role of facilitator while moderating dialogues;
- formulating specific questions to encourage reflection;
- facilitating the exchange among students;
- the prior knowledge and insights upon which students base their reasoning;
- the motivation and enthusiasm of students;
- the extent to which students' own frames of reference were addressed during conducted dialogues;
- the assessment of the impact of the learning activities on students' NOS insights;
- the overall estimation of learning gains among students.

Additionally, teachers' opinions were sought on aspects such as the design of the materials, the preparation time required by teachers to implement the learning materials in their classrooms, and the substantive utility of the learning materials.

In each research cycle, following a try-out phase, comprehensive feedback sessions were conducted with the entire PLC to facilitate the evaluation and refinement of the teaching method. In this process, feedback was consistently looped back to the established design principles.

## RESULTS

### Design principles

With regard to the design principles (RQ1), our research suggests that the teaching method should: (a) focus on understanding how scientific knowledge about climate change is generated; (b) provide learners the opportunity to gain insight into their own frame of reference regarding climate change; (c) make use of open dialogues, questioning fundamental insights about science (e.g. how do you know if something is true); (d) help learners critically evaluate (digital) sources about climate science.



On a formal level, the teaching method should provide didactic materials that: (a) can be used independently in different lessons; (b) show a good balance between digital and face-to-face learning; (c) stimulate peer-to-peer education as an effective learning technique.

### **A teaching method to help reflect about NOS and (mis)information**

Taking the design principles into account, a prototype was developed. Various learning activities were created, ranging from concept cartoons, mind mapping assignments, dialogue questions, and case studies on graphs and tables, to positioning and classification exercises. In these activities, issues related to climate science are explored, and questions are posed to guide students in critically exploring multiple perspectives. Through these activities, students are encouraged to develop and refine their opinions through dialogue, recognizing that meaning-making is a social and subjective process. They learn to assess information for reliability, utility, and accuracy, with attention to the societal context. Students reflect on different observations and research methods, contemplate information acquisition, and recognize the value of multidisciplinary. Finally, they are also prompted to contemplate the broader cultural context in which science is conducted, engaging in dialogue to explore the ethical aspects of scientific practice.

Through the dialogue and reflection exercises on the cards, we challenge ambiguities and misconceptions about science that impede the understanding of climate research. The emphasis of the learning activities is on gaining insights into NOS through reflective dialogue.

These learning activities were incorporated into didactic cards. The front of each card contains a stimulus linked to climate science and climate research. The back includes specific instructions regarding the dialogue and reflection exercise, processing questions and a major dialogue question to conclude the learning activity, that makes young people think about how science is conducted. In addition, the key goals of the learning activity are also listed on the back of each card. On some cards, tips for digital support of the exercises are added (for instance the use of a digital bulletin board).

Diverse facets of NOS are systematically addressed throughout the prototype. For instance, one card features two graphs illustrating the temporal evolution of the average atmospheric temperature. Although both graphs derive from identical data, a varying scale is employed for data presentation. The emphasis in this particular card is on the NOS insight that scientific knowledge construction hinges on the intertwined processes of observation and interpretation. The processing questions on the card help to underscore that the ascription of meaning to observations is contingent upon the interpretive framework. Additionally, the card attends to the NOS insight that highlights the pivotal role of context. It can elucidate how political

and economic factors not only shape the selection and execution of research but also influence the interpretation of observational data (figure 1).

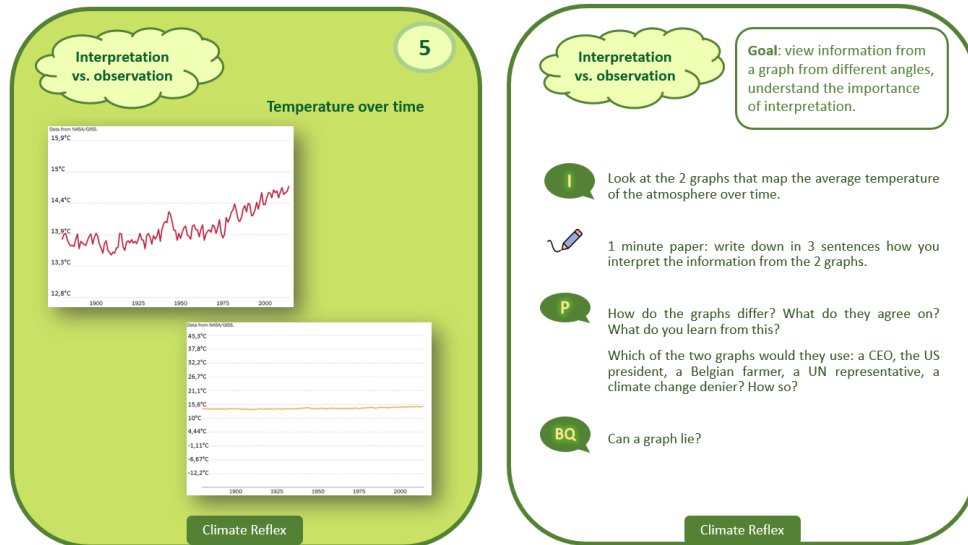


Figure 1: didactic card with learning activity to help reflect about the interpretation of observational data.

A second exemplar card focusses on the theme of scientific doubt, featuring a graph depicting the current estimated trajectory of global emissions. This card sheds light on the misuse of scientific terms like consensus, probability, and uncertainty, which can diminish the perceived urgency of addressing global warming. The concept of uncertainty in statistics denotes a margin of error, and it is imperative not to separate this from its contextual underpinnings. Facilitating dialogues among learners about scientific doubts enables them to glean insights and comprehend the nuances of uncertainty more accurately (figure 2).

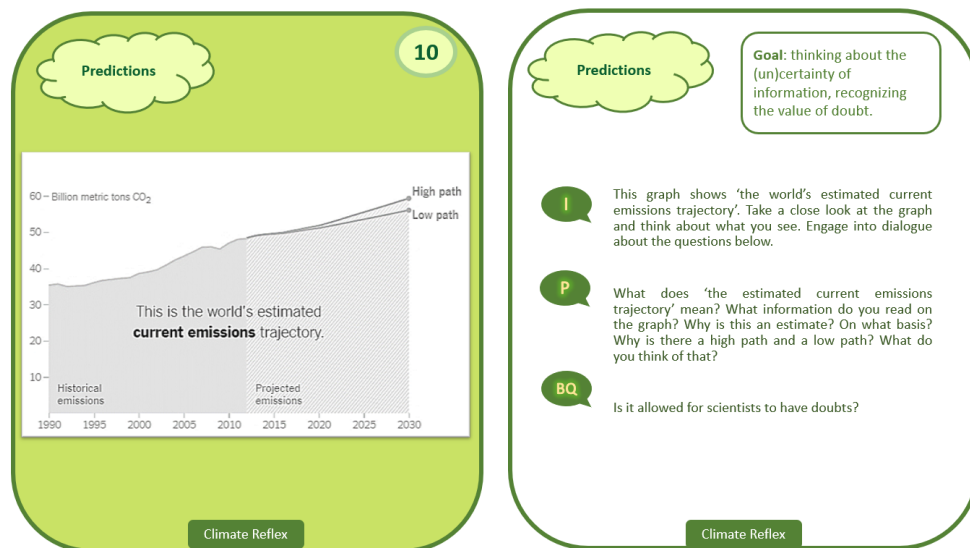


Figure 2: didactic card with learning activity to help reflect about the (un)certainty of information and about the value of doubt.

## Incentives and barriers for implementing a NOS-based teaching method in the context of climate education

Concerning the operationalization of the developed teaching method, incentives can be distinguished from barriers (RQ2). Insight gained from in-depth teacher interviews indicates that a pedagogical stance oriented towards development, as opposed to a transmissive approach, fosters the effective implementation of the teaching method. Incentives identified consequently include the teacher's commitment to a developmental teaching approach, the enthusiasm and engagement of learners, the realization of becoming less central as a teacher when students collaborate effectively, concrete connections in the learning materials with the learners' living environment, concrete connections with current events in society, the utilization of activating and visually compelling didactic materials, and variety in the provided exercises. The teacher's familiarity with the concept of Nature of Science is another factor influencing the successful execution of the teaching method.

Conversely, potential impediments for teachers in adopting the teaching method encompass issues such as workload constraints, time limitations, the learners' insufficient development of critical thinking skills, the limited vocabulary of students to articulate one's own reasoning and ideas, diversity in student backgrounds (for instance different starting situations, different social backgrounds), overcrowded classes, unsafe classroom atmosphere, and uncertainties regarding how to facilitate meaningful dialogues among learners. Furthermore, a notable hindrance is identified by surveyed teachers in the misalignment between the concept of NOS

and learners' pre-existing perceptions of science. The latter, shaped by previous educational experiences, tends to portray sciences in binary terms, as 'exact sciences' with minimal shades of grey.

### **Stimulating NOS insights**

By analysing recordings of reflective dialogues conducted by teachers who were part of the PLC, we were able to form an understanding of how the teaching method contributes to dialoguing about science and the stimulation of NOS insights. For instance, one of the learning activities (specifically a dialogue using a didactic card with a concept cartoon about the meaning of the word 'climate,' in which various characters provide different interpretations of 'climate') led students to observe that diverse ideas from scientists can complement each other, emphasizing that engaging in science is a social endeavour.

In another class, during a dialogue using the same didactic card, the secondary school students concluded that it is crucial to understand what their conversation partners mean by a particular concept to engage in a constructive and transparent conversation. They noted that misunderstandings in science communication can arise when there is insufficient attention given to clarifying and sharpening concepts.

Another example highlights the presence of peer education during the conducted dialogues. In one of the learning activities (a dialogue using a card with a concept cartoon about the meaning of CO<sub>2</sub>, in which various characters express their ideas about what CO<sub>2</sub> is and its potential danger), students share their knowledge about CO<sub>2</sub> and the perceived level of danger for humans. They base their responses on the statements made by the characters in the concept cartoon, but they also introduce their own insights. Ultimately, these students reach the NOS insight that opinions can be adjusted after acquiring new knowledge, and the concept of 'evolving understanding' or 'progressive insight' exists.

### **The teacher as a dialogue facilitator**

When implementing the methodology, it becomes evident that it is crucial for teachers to assume their role as discussion facilitators in a correct and stimulating manner. It is essential for them to clearly convey to their students that a dialogue differs from a debate. In a debate, the emphasis is on defending one's own position, which can lead to unproductive polarization. In a dialogue, the focus is more on collaborative thinking than on convincing others.<sup>25</sup>

During a dialogue, the teacher guides the conversation while remaining in the background, not taking a directive role. Our study points out that this proves to be challenging for teachers, as it is not easy to postpone personal judgments and listen unbiasedly to what students bring to the table. Try-outs indicate that science teachers

tend to steer the conversation towards themselves and find it difficult to let go of the transmissive role of the teacher, even if they support a developmental teaching approach. Too frequently, suggestive questions were posed or words were put into students' mouths ("So what you're actually saying is ...").

Secondary school students also often struggle with this 'different' role of the teacher, who, during reflective dialogues, temporarily steps away from the role of knowledge authority and instead tries to facilitate students in gaining insight into their thoughts and reasoning. This manifests itself in awkward behaviour, hesitations and a wait-and-see attitude.

Various types of questions can help moderate reflective dialogues effectively. Examples of such questions include those focusing on clarification (What do you mean by ... ? Can you provide an example?), argumentation (Why do you think that? How do we know if this is accurate?), different perspectives (Can you imagine the opposite? What would someone say who disagrees?), consequences (What can we infer from this? What are the implications for X or Y?), and conclusion (Have we discovered something new? Do we understand the theme better?).<sup>26</sup>

Additionally, it is crucial for the teacher to possess sufficient background knowledge so that, after the card is set aside and the learning activity is concluded, they can once again step to the forefront and address any misunderstandings or lingering questions.

## DISCUSSION

By asking critical questions about science, learners are encouraged to reflect on climate science. They are stimulated to gain insight into their own frame of reference, to assess information for reliability and accuracy, and to reflect on various scientific graphs and models. PLC-participants suggest in interviews that the teaching method contributes to open dialogue about climate misinformation, through the exercises that focus on different NOS facets, such as interpretation, subjectivity, scientific doubt, context, and empiricism.

Teachers and experts highly value the developed methodology, which focuses on stimulating NOS insights in students within the context of climate education. They affirm that there is a deficiency among students in critically engaging with (mis)information directed their way. They emphasize that every citizen benefits from an accurate assessment of scientific statements.

Attention should be directed towards providing better support for teachers in moderating reflective dialogues. Despite the teachers who tested the materials expressing openness to a development-oriented educational approach, they found it challenging to relinquish the transmissive approach and position themselves more in the background. They often steered the conversation towards themselves, frequently taking the lead in the dialogues. This deprived students of the opportunity to

articulate their own thoughts and respond directly to each other's input. Instances where students engaged in dialogue with each other, and the teacher felt less central to the proceedings, were perceived as highly valuable by the teachers.

The methodology also proved demanding for teachers in other respects. A thorough understanding of students' living environment and awareness of the current events impacting students were noted as incentives. This requires dedication and commitment so that these aspects could be seamlessly incorporated into the dialogues. Additionally, it can be assumed that teachers' enthusiasm for using the methodology themselves also influences the enthusiasm and engagement of the students.

Regarding impediments to implementing the methodology, such as workload constraints and time limitations, the research has limited influence. However, clear communication about the estimated time investment proved to be a positive factor. Other barriers to the success of the methodology's implementation should be considered in future research, with a primary focus on obstacles related to an unsafe classroom atmosphere and teachers' uncertainty about how to facilitate a meaningful dialogue.

Further research will need to determine whether additional practice with dialogue exercises and activities contributes to a different perspective among students on science. This shift involves viewing sciences less as 'exact sciences' with minimal shades of grey and making room for a vision of science in which NOS insights play a prominent role.

## CONCLUSION

The proposed design criteria were consistently validated throughout the various research cycles. Additionally, through the conducted try-outs, surveys, and interviews with the Professional Learning Community (PLC) members, we obtained a clear understanding of the incentives and barriers associated with the implementation of the developed teaching method. The teaching method is promising in terms of stimulating reflection on climate misinformation by dialoguing about NOS in the context of climate education.

By working with a PLC of researchers, teachers and experts, the didactic material is adapted to the real needs in the educational field, with a higher likelihood of sustainable implementation.

By identifying the variables that hinder the implementation of the teaching method, follow-up study can focus more strongly on clear guidelines, tips for supporting reflective dialogues and creating a safe classroom environment. In further research, we will examine the type of dialogue evoked when using the didactic materials, by coding and analysing more dialogues whilst focussing on the different reasonings of



learners, the questions of teachers and learners and the exchange among learners. This approach will allow us to assess in more depth the extent to which learners reflect on science, whilst focusing on climate science

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# HYBRID LEARNING DURING THE COVID-19 PANDEMIC – STUDENT PERSPECTIVES ON OPPORTUNITIES AND LIMITATIONS OF HYBRID DISTANCE LEARNING

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## ABSTRACT

*The Covid-19 pandemic caused far-reaching restrictions for schools and students. For many countries, studies have already investigated the consequences and effects of distance learning during the general school closures at the beginning of the pandemic. In contrast, little research has been done on hybrid distance learning for students who were later quarantined and unable to attend face-to-face classes like their classmates. This study examines students' perspectives on hybrid distance learning during the Covid-19 pandemic by analysing and coding the responses of  $N = 399$  students to open-ended questions from a student questionnaire. The study concludes that students mainly missed social contact and direct learning support during the hybrid distance learning period. On the other hand, the students liked the benefits of being at home and the opportunity to work more independently and flexibly. Based on these results, it is possible to identify how to better deal with similar situations and how to better meet the needs of students in times of crisis.*

## INTRODUCTION

In order to contain the Covid-19 pandemic, Switzerland, like most countries worldwide, imposed a quarantine obligation on infected persons and direct contacts. The duration of this quarantine usually lasted 10 days in Switzerland (Eidgenössisches Departement des Innern, 2021).

Students in quarantine could not attend school. However, they were still required to participate in education unless they were seriously ill in order to maintain society's educational function (Hummrich, 2020). As a result, hybrid distance learning had to be implemented for these students (Bildungsdirektion Zürich, 2021). In contrast to the general school closures at the beginning of the pandemic (Wacker et al., 2020), students in quarantine learnt from home while the rest of the class attended face-to-face instruction with the teacher in the classroom.

With the start of the containment measures, research projects were quickly set up to gather information about the new and unfamiliar situation (Helm et al., 2021). In the school context, the focus was set on distance learning during the general school closures, specifically learning behaviour and quality of teaching (Böttger & Zierer 2021; Helm et al. 2021; Unger et al., 2022). Less research has been conducted on student well-being and hybrid distance learning in the later stages of the Covid-19 pandemic (Helm et al., 2021; Ravens-Sieberer et al., 2022; Stein & Zimmer, 2022).

This study aims to provide teachers with clues on how to establish hybrid distance learning that is comfortable and effective for students. Although the Covid-19 pandemic seems to have lost its restrictive impact, the likelihood is high that some students will not be able to attend face-to-face classes due to extreme weather conditions, teacher shortages or epidemic outbreaks in the future (Marani et al., 2021). For this reason, and because of the higher proportion of work done outside traditional classroom settings, hybrid teaching-learning formats are also seen as a prospect for post-pandemic education (Letzel-Alt et al., 2023). However, more research is needed, and the advantages and disadvantages need to be weighed in order to incorporate these findings into future forms of teaching (Huber et al., 2023). In addition, the findings can also be used to further develop regular classes.

## THEORETICAL AND EMPIRICAL BACKGROUND

The unprecedented far-reaching measures to contain the Covid-19 pandemic caught most school system stakeholders unprepared (Tomasik et al., 2021). One of the containment measures that had a major impact on student's lives in many countries was the closure of schools at the beginning of the pandemic (United Nations, 2020). Similar to the course of the pandemic, containment measures were not linear. The nationwide school closures at the beginning of the pandemic were followed by different arrangements for teaching-learning environments, depending on the country, region, and incidence rate, to which stakeholders had to adapt and not all of which have yet been sufficiently studied.

Due to the lack of studies on hybrid distance learning for quarantined students, the following section presents findings on teaching during the period of general distance learning. Because of the comparable underlying conditions, it is likely that some parallels can be assumed between the two teaching-learning setups. For example, both forms of teaching pose unknown challenges for the actors involved and the teaching is characterised by physical distance between students and teachers.

### **Quality of distance learning**

In German-speaking countries, a low proportion of direct communication between teachers and students was found for teaching during the first period of general school closure (Huber et al., 2020; Unger et al., 2020; Vourikarine et al., 2020). This is relevant insofar as Helm et al. (2021) and Tengler et al. (2020) identified regular direct exchange between all actors involved as the basis for functioning distance learning. Lower level of direct communication led to a high proportion of unstructured independent work (Anger et al., 2020; Wössmann et al., 2020) and resulted in a reduction of students' daily learning time (Huber et al., 2020; Wacker et al., 2020). Difficulties with digital infrastructure and the need to structure learning days largely on their own also made it more difficult for students to learn during the period of general school closures (Garrote et al., 2021; Wacker et al., 2020). This is also reflected in the successively published findings of an at least partial "learning loss" among students (stagnation or decline in performance) from numerous countries (OECD, 2023). Despite the difficulties described, more than half of the students felt that distance learning worked decently (Baier & Kamenowski, 2020; Schwerzmann & Frenzel 2020). Students particularly appreciated the opportunity to work more independently, the higher proportion of practice time and the greater choice of tasks (Holtgrewe et al., 2020).

### **Well-being of students during the school closure**

As mentioned above, students' well-being has been less researched than learning behaviour or student success. Approximately 40% of students reported a great difficulty in understanding the content of lessons during the school closure period, leading to a third of students worrying about their grades or qualifications (Refle et al., 2020; Schreiner et al., 2020). This lower learning success led to lower self-efficacy in learning, which in turn had a negative impact on students' well-being (Märghitan et al., 2017). On the other hand, students experienced higher self-efficacy due to the higher proportion of independent work (Holtgrewe et al., 2020). Students also reported being more motivated and focused when working independently and in a quieter working environment (Garrote et al., 2021). In contrast, the lack of routine and structure of the school day (Huber et al., 2020; Refle et al., 2020) and the lack of social contact (Brand et al., 2021; Garrote et al., 2021) had a negative impact on the well-being of some students. During the period of the Covid-19 pandemic, higher levels of stress and a decrease in subjective quality of life (Magson et al., 2021; Ravens-Sieberer et al., 2022; Romero et al., 2020; Whittle et al., 2020), as well as increases in depression, hyperactivity, and confrontational behaviour

(Döpfner et al., 2021) were found among students. In summary, the pandemic's impact on individual students' well-being remains ambiguous and under-researched.

## **RESEARCH DESIDERATA**

As already mentioned, research on hybrid distance learning is a desideratum. In addition, the impact of the Covid-19 pandemic from students' perspective has not yet been sufficiently researched, especially with regard to students' well-being. This study addresses these desiderata by gathering evidence on which aspects of hybrid distance learning are perceived positively or negatively by students. This evidence will be used for providing teachers with information on which students' needs should be considered in order to establish successful hybrid distance learning. Taking students' needs into account is necessary to realise the full potential of hybrid teaching-learning systems in the future and to establish meaningful teaching in similar situations of crisis. In addition, the findings will be used to gain insight on how to develop regular classroom instructions further.

## **METHODOLOGICAL APPROACH**

### **Background to the study**

This study is part of the research project “Learning from the Impact of Covid-19 on Educational Practice to Expedite Pedagogically Meaningful Digitisation” within the Swiss National Research Programme (NRP) 80 “Covid-19 in Society”, funded by the Swiss National Science Foundation (SNSF, Grant No. 408040\_210193). The project investigates the impact of the Covid-19 pandemic on schools and students in Switzerland. Based on the results, a model for better integration of digital media in (distance) learning and guidelines for teachers on how to establish effective teaching settings in comparable situations of distress will be derived.

### **Survey instrument**

The analysed data was collected as part of the student survey “My Corona Diary”. Students from Germany, Austria and Switzerland from different grade levels and school types were asked about their experiences during the Covid-19 pandemic in the form of an online survey using SoSci-Survey (Leiner, 2019). The data were collected between the 5<sup>th</sup> of April 2022 and the 22<sup>nd</sup> of July 2022.

The questionnaire consisted mainly of closed-ended questions asking students about their perceptions of the quality of teaching, the perceived support, the perceived sense of stress, their learning behaviour and more. In addition to the closed questions, the questionnaire included the two open-ended questions “What did you like about distance learning? What do you think could stay the same?” and “What did you not like about distance learning?”.

Within the questionnaire, a distinction was made between students who were (1) in quarantine at the time of the survey, or (2) in quarantine within the last 3 months before the survey, or (3) not in quarantine within the last 3 months before the survey.



While the first two groups were asked to rate their current and recent distance learning experiences, respectively, the latter group was asked to rate their experiences retrospectively, focusing on the period of general school closure.

## Sample

The present study focuses on the data of students from group (1) and (2) who were in quarantine at the time of the survey or shortly before and reported their experiences during lessons in quarantine, where the rest of the class was taught face-to-face. For this study, the open-ended responses of  $N = 399$  students were analysed. The composition of the sample is shown in *Table 1*.

*Table 1: Distribution of students across class levels and school type*

Country	School type					
	Primary school	Lower secondary school	Higher secondary school	VET School	Other school types	NA
Germany	6	109	179	19	16	4
Switzerland	1	57	2	-	5	-
Austria	-	-	1	-	-	-
Total	7	166	182	19	21	4
	Grade level				Total	
	<i>M</i>	<i>SD</i>				
Germany	10.12		2.17		333	
Switzerland	8.28		0.80		65	
Austria	10		0.00		1	
Total	9.81		2.12		399	

## Data analysis

To answer the research question, student responses to the two open-ended questions were coded using quantitative content analysis following Züll and Menold (2019) in MAXQDA (MAXQDA, 1989 – 2021).  $N = 382$  students responded to the first question “What did you like about distance learning? What do you think could stay the same?”, and  $N = 388$  students responded to the second question, “What did you not like about distance learning?”. Due to limited previous evidence on this topic, the code tree was developed inductively. A separate code tree was created for each item, which was created using randomly selected 30% of the total data set. This code tree was then slightly adapted and communicatively validated (cf. below). The

inductive categorisation resulted in 6 and 8 categories, respectively, for each of the items, with up to 6 subcategories.

Consensus coding (Richards & Hemphill, 2018) was conducted by two coders, therefore the content of the critical codes was discussed to ensure an agreement between the coders. Each sensemaking statement about the perception during hybrid distance learning was categorised as a coding unit. Therefore, individual keywords could be coded as mentioned aspects. Multiple categorisations of a statement into several categories were also possible.

## ANALYSIS

In the following, the results of the coding process for each of the two items that were answered by the students are presented.

### Aspects of hybrid distance learning that students liked

The students' answers to the first item suggest that, despite the challenges described in relation to teaching during the Covid-19 pandemic, there were also aspects of hybrid distance learning which students liked. The frequency of mention of specific aspects in the responses is shown in *Figure 1*.

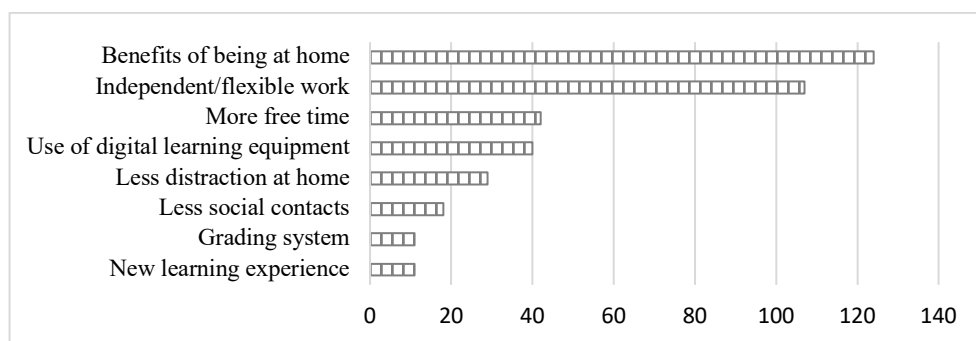


Figure 1: Quantity of mentioned aspects of students on Item 1

The most frequently mentioned aspects that students liked about hybrid distance learning were the benefits of being at home ( $n = 124$ , e.g., 3229: “*I liked being at home. I don’t like being at school because it is a place of stress and pressure for me.*”).<sup>4</sup> Especially the possibility to sleep longer during this time ( $n = 94$ , e.g., 4060: “*That I could sleep in until the last moment*”), not having to dress up for school and being able to wear more comfortable clothes ( $n = 25$ , e.g., 4623: “*You didn’t have to ‘dress up’ much because you were without a camera anyway*”) and the possibility to eat and drink during lessons ( $n = 11$ , e.g., 2971: “*That you were allowed to eat and drink whenever you wanted*”) were mentioned by several students.

The second most frequent type of response, given by  $n = 107$  students, referred to the advantages of working more independently and flexibly (e.g., 4557: “*That you*

<sup>4</sup> All student quotes were collected in German and translated into English.

can organise your own time, when you work on which tasks”) and therefore also to have better time management when working on tasks ( $n = 15$ , e.g., 758: “You can organise your own time and work more efficiently, because at school you often just sit around without doing anything. In distance learning, on the other hand, I use the time for learning optimally”).

In third place,  $n = 42$  students stated that they liked having more free time during this period (e.g., 2008: “I was able to do the tasks that the teacher gave us in the morning and then I was done. After that I could do other things.”). Furthermore,  $n = 40$  students stated that they liked the increased use of digital learning media (e.g., 3025: “I also liked the fact that the apps [Moodle in my case] were introduced. It gave me a much better overview.”).  $n = 29$  students also stated that they were able to concentrate better and were less distracted in the quieter working environment at home (e.g., 3063: “I was able to concentrate better than at school because it wasn’t so loud.”).

### Aspects of hybrid distance learning that students did not like

Figure 2 shows the number of student responses to aspects of the second open-ended item “What did you not like about distance learning?”.

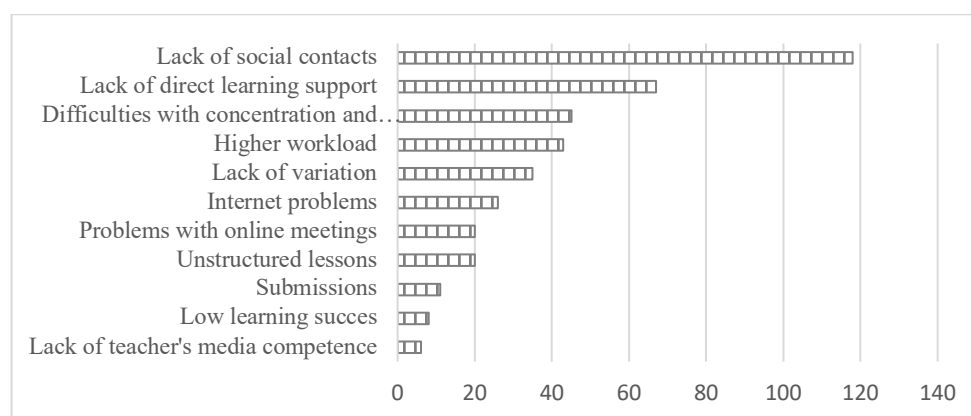


Figure 2: Quantity of mentioned aspects of students on Item 2

The most common aspect that students mentioned as something they did not like was the lack of social contacts during hybrid distance learning ( $n = 118$ , e.g., 2764: “There was a lack of contact with friends and classmates [...]”).

The second most common negative aspect was the lack of direct learning support ( $n = 67$ , e.g., 2321: “Sometimes you could hardly get any help from the teachers because you were on your own”).  $n = 45$  students stated that they had a much higher workload during this time than under normal conditions (e.g., 3905: “We were always given so much to do. As soon as one task was finished, another one followed immediately [...]”).  $n = 43$  students also stated that they did not like the fact that they were more distracted at home (e.g., 1033: “Lack of concentration because I didn’t

*have a quiet place*”) and that they had difficulties motivating themselves to learn (e.g., 3641: “*You couldn't motivate yourself to learn [...]*”).

That the lack of variety during the quarantine was stressful for them because they had to stay at home all the time,  $n = 35$  students stated ( $n = 14$ , e.g. 2971: “*That you weren't allowed to leave the house [...]*”), that you had to spend a lot of time in front of the screen ( $n = 10$ ) or that you had too little physical activity during this time ( $n = 3$ ).  $n = 26$  students also stated that they had problems with their private internet connection or the programmes and platforms they used (e.g., 2875: “*The program crashed for many [students] – class was often interrupted as a result*”). Furthermore,  $n = 20$  students stated that the lessons during hybrid distance learning were very unstructured, which they did not like (e.g., 1094: “*[...] at my school, the whole thing seemed very unstructured to me.*”).

## DISCUSSION

The measures taken to contain the Covid-19 pandemic had a major impact on the school system and the students. While there have been some studies on learning behaviour and quality of teaching during the general school closures at the beginning of the pandemic in different countries, as presented in this paper, research on hybrid distance learning for students who were quarantined at a later point in the pandemic is largely a desideratum.

This study examined the perspective of quarantined students on hybrid teaching-learning formats. For this purpose, the responses of  $N = 399$  students from Germany, Austria and Switzerland to two open-ended questions were analysed: “What did you like about distance learning? What do you think can stay the same?” and “What did you not like about distance learning?”. These students were in quarantine at the time of the survey or within three months prior to the survey.

Among the aspects that students liked about hybrid distance learning, most mentioned the benefits of being at home and, most importantly, the ability to sleep out longer. These findings suggest that for many students, the school building is a place associated with feelings of pressure to perform, which is responsible for negative emotions towards school (Rost & Haferkamp, 2019). Schooling at home may avoid this direct confrontation with negative associations. This is also supported by the findings in this study, that the third most common stated aspect was that students liked having more free time during hybrid distance learning. This suggests that there should be done more to ensure that schools lose these negative connotations. The aspect of sleeping longer also suggests that, under normal circumstances, classes start too early for many students and contradict their biorhythms (Gelfand et al., 2020), which supports a later start of school. In addition, some students reported that they were able to concentrate better at home than at school because there were fewer distractions. For this reason, it may be helpful for some students to be provided with quieter learning spaces for periods of independent work in regular classes without being exposed to distracting stimuli from the rest of the class. In addition, it is crucial that students in hybrid lessons have a place at home

where they can learn undisturbed. Studies have shown that this can significantly predict the task comprehension (Unger et al., 2022).

The second most frequently mentioned factor was that students enjoyed working more independently and flexibly. This suggests that, under normal circumstances, many students would also prefer to have a higher proportion of independent and self-directed learning in the classroom. According to Deci and Ryan's (2000) self-determination theory, this independent work can have a positive effect on students' emotions and motivation to learn and thus have a positive effect on their learning progress and well-being. Two implications can be drawn from this: (1) The findings suggest that independent work in open teaching formats should also be implemented in regular classes. (2) In addition, a form of (hybrid) distance learning should be found in which not all school subjects are transmitted 1:1 according to the timetable into the home learning environment, for example via video conferencing. Instead, based on the individual and independent form of distance learning, tasks should be found which are presented and explained at the beginning and can be discussed at the end, but which above all require a lot of independent work from the students while they are working on them. Constant support in video conferences does not seem to make much sense here (Wacker & Unger, 2021).

Many students welcomed the increased use of digital learning media. While digital learning systems were introduced in countries such as Switzerland before the Covid-19 pandemic (Unger et al., 2023), the German education system has lagged behind other areas of society in terms of digitalisation (Aufenanger & Bigos, 2023). The Covid-19 pandemic was therefore a catalyst that accelerated the digitalisation of the school system (Aufenanger & Bigos, 2023). The findings of this study can therefore be seen as a clear vote in favour of strengthening digitalisation in education.

On the side of aspects that students did not like about hybrid distance learning, most students mentioned a lack of social contact. Therefore, in future hybrid distance learning situations teachers should pay attention to this and give students more opportunities to socialise with their classmates. For example, through digital group work or in "relaxed" plenary video meetings where topics outside of school can be discussed. A lack of contact with classmates leads to a lack of social integration, which, according to Deci and Ryan's (2000) self-determination theory, has a negative impact on motivation, well-being, and learning behaviour.

The lack of learning support criticised by some students suggests that teachers should be available to students during hybrid distance learning. Furthermore, students should be given the opportunity to ask questions – at least several times a day – in order to make hybrid distance learning more productive on their learning progress. Some students also reported that they were less able to concentrate and motivate themselves when studying at home and that they received a significantly higher number of tasks to work on. Since studies of teaching during school closures indicate that the daily proportion of learning time decreased (Huber et al. 2020; Wacker et al. 2020), these findings suggest that students are not used to this type of instruction and

were overwhelmed by learning at home and therefore needed more time to complete their tasks. Accordingly, students should be better prepared for independent work in order to meet their desire for more of it and to enable themselves to have a successful learning experience. However, the subjectively perceived higher workload and the unstructured lessons, which were also criticised by the students, may also be due to the teachers' lack of experience with this form of teaching. Therefore, it is important to better prepare teachers, especially for forms of physically separated teaching, in order to be able to provide more productive teaching in comparable situations in the future. In addition, distance learning should also be integrated into the regular timetable so that both teachers and students can switch quickly when forms of distance learning suddenly become relevant again.

Since students reported having too little physical activity, it is also advisable to integrate short physical exercises in front of the screen within the conducted lessons. Existing, age-appropriate fitness videos can also be used for this purpose.

The available data suggests that there are some parallels between students' perceptions during general school closures and those during hybrid distance learning. For example, during the general school closures, students also reported that they had more difficulties in understanding the content of the lessons (Schreiner et al., 2020) and that the school day was unstructured (Refle et al., 2020). The lack of social contact was also a challenge in both teaching-learning scenarios (Brand et al., 2021; Egger & Huber, 2023; Garrote et al., 2021). On the other hand, students also liked the higher proportion of independent work during the general school closures (Holtgrewe et al., 2020) and some students stated that they were able to concentrate more on their work at home (Garrote et al., 2021). The later start of classes was also seen as a positive aspect by students in both hybrid and general distance learning (Egger & Huber, 2023).

The present study has some limitations that need to be taken into account when evaluating the results. Since the proportion of students in higher grade levels and from Germany (compared to other countries) is comparatively higher than in the population, the sample is not representative of the target group of students. It is also unclear to what extent the students' answers reflect their actual feelings during hybrid distance learning. For example, the two questions that were asked, suggests that students should name both positive and negative aspects of hybrid distance learning, but the answers to the questions cannot be weighed against each other in terms of their overall impact on students' experiences.

This study examined students' perspective on hybrid distance learning in order to gain insight into what went well from the students' point of view and where there were major challenges. As the effects of the Covid-19 pandemic containment measures have not yet been adequately studied, further research is needed to better assess these effects. The results should then be used to improve the learning experience and well-being of students in similar situations in the future. The results of the PISA study in 2022 already provide an indication of the countries in which



students were particularly affected by school closures in terms of learning outcomes (OECD, 2023). However, there is still insufficient and ambiguous evidence on how such effects varied across students and on the impact on students' well-being during this period. Further research is therefore needed to address these research gaps.

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# A WAY TO COLLABORATIVE LEARNING IN HUMANITIES: A STUDENT JOURNAL<sup>5</sup>

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## ABSTRACT

*This project aims to fill two educational gaps that have been observed in Humanities: the lack of collaborative learning and the lack of publishing opportunities for students. The educational goal of this project is the creation of two learning environments: a structural collaborative learning environment and a learning environment aiming at academic publishing skills. The two deliverables of this project are a course contribution to the thesis seminars on collaborative learning and publishing skills and a Faculty level multidisciplinary academic student journal. Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together with a common goal, achieved by team effort. There are major social, psychological, academic, and assessment benefits. Both deliverables (course contribution and journal) are excellent instruments to promote collaborative learning. On the one hand, collaborative learning will be implemented during the thesis seminars by requiring maximal student participation, building teamwork competencies and integrating multimodal learning interactions. On the other hand, accessing academic publishing possibilities will allow the students to improve their skills, both academic (becoming authors and experiencing co-authoring with fellow students) and professional (joining the editing board and experiencing project-management and professional team work). This project will ensure an excellent insight for students to academic research and publishing; which will complement their studies and allow them to deepen their own understanding and learn from and with fellow students, the core of collaborative learning.*

## CURRENT SITUATION IN THE HUMANITIES

In the current situation in the Humanities, there are two main educational gaps which need to be filled: there is a lack of collaborative learning and there is a lack of publishing opportunities for our students. The target of this project is to fulfil the two gaps and create a better learning environment for our students.

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## **Lack of collaborative learning**

Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together with a common goal, and it is achieved by team effort. There are major social, psychological, academic, and assessment benefits of collaborative learning (see Laal & Ghodsi (2012) for an overview). Moreover, it has been shown that teachers need to adequately train students in collaborative skills prior to the collaboration goals (Ha, Janssen & Wubbels 2018).

Collaborative learning as a pedagogical model is rarely practiced in Humanities (Ullyot & O'Neill 2016), and Humanities have far lower rates than (Social) Sciences in collaboration and co-authorship (Borgman 2007). Leonard & Wharton (1994) and Moore Howard (2001) argue that this trend derives from the Humanities' traditional preference for individual authorship. However, Humanities students also need to be able to address teamwork challenges, and be prepared for a future of multidisciplinary (Ullyot & O'Neill 2016). This is clearly an obstacle for Humanities students who will have to face multiple collaborations in the labour market (see NAE 2019).

## **Lack of publishing opportunities**

Another related observation is that, although being able to deliver academic work is a final learning outcome of many course programmes at our Faculty, readers of academic publications will recognise that these rarely feature Bachelor and Master level student production. This is often the case, despite the high quality of student work that lecturers encounter every year. This is an unfavourable situation. The Faculty of Humanities at the University of Leiden knows a small number of publishing platforms for our students (program-based online journals such as *Medusa*, *Leidschrift* and *Inter-section*), and there are small scale projects where courses prepare a small number of students to publish their work. However, there has never been a platform at Faculty level in which students can work together across disciplines. These platforms offer too little opportunity for students to become acquainted with the kind of processes and skills involved in academic publishing. Talented students may experience the current educational situation as a problem, as they do not have the possibility to publish their work if it is not together with their thesis supervisor.

## **Goals and structure of this project**

These two challenges, i.e. the lack of collaborative learning and the lack of publishing opportunities, are the foundation of the two educational goals of this project:

- a structural collaborative learning environment
- a learning setting aiming at academic publishing skills



A collaborative learning environment will be achieved at two levels: by structurally including instruction on collaborative learning a) in courses where teamwork is expected, and b) in team work interactions within the editorial team (see application of collaborative learning below).

This article is structured as follows. First of all, a description of collaborative learning and the skills needed as it is used in for this project will be presented, secondly an overview of Leiden University's institutional educational vision will be presented, and how this project fits into it, thirdly an overview of the current project and its outcomes will be offered and finally there will be a list of considerations that are relevant for the sustainability of the project once the funding is finished.

## **COLLABORATIVE LEARNING**

Laal & Ghodsi (2012) already suggested that collaborative learning benefits students in many areas. In this project the majority of the benefits for students can be found in the areas of academic skills and assessment.

First of all we would like to discuss how students develop an academic set of skills and attitude through collaborative learning. Academic skills and attitude are commonly understood in terms of epistemic virtues pertaining to individual students, as qualities of individual cognitive performance to be cultivated by students (e.g., accuracy, logical rigour, knowledgeability, independence, lucidity, critical sense). This is especially the case in Humanities. Over the past decade, however, future employers search for students who are able to communicate and collaborate with each other. The skill set which employers nowadays need and is expected from students that enter the job market has gradually changed. This could be explained by the large technological and digital changes in society. This paradigm shift pertains no longer primarily to individual agents, but rather to groups of collaborating agents. This could also be explained by the shift has changed in how research is done. It is especially visible in the natural sciences and medical publications. There is not just one author anymore, but journal publications have large lists of authors. This shift is already visible in Humanities, but we are still behind other academic disciplines.

New teaching strategies are needed to enhance Humanities students with collaboration skills like formulating a common goal, shared planning and receiving and giving feedback. At university level 13 transferable skills are formulated.<sup>6</sup> One of these skills is collaboration. Collaboration is defined by seven behavioural indicators: a student provides contributions, ideas or proposals aimed at group results, responds actively and constructively to ideas of others, shares information and experiences with others, offers help when others need it, takes into account the wishes, interests and feelings of others, reflects on the effect of own behavior on others and adjusts behavior if necessary, stands for commitments and obligations

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<sup>6</sup> <https://www.universiteitleiden.nl/en/dossiers/vision-on-teaching-and-learning/8-ambitions/skills>

made, contributes to an atmosphere and relationships that promote open scientific exchange.

In the editorial team of the Humanities journal of this project (The New Scholar) students' collaborative learning is focused on planning and communication. How do you give and receive feedback? How do you discuss the submitted papers? Or how do you meet the deadlines set by the editorial board? Supervising collaborative learning requests new skills from the instructor. In this project the Faculty offered a teacher training on supervising collaborative learning of students in project situations. During the training tools were offered how to supervise students collaborating. Furthermore, the senior staff involved in this project designed two knowledge clips about the publishing process. The most important intervention is the design of the tasks that leads to the publication of the student journal, which will be explained here below.

### **Tasks student editorial board**

The editorial team has three student editors, on a rotating basis. The lecturer (also called senior editor in this context) supervises the editorial team and guides them through the process of academic publishing. The team needs to find reviewers, make a call for papers, among other tasks. Further in the publishing process, learning about planning and communicating with reviewers and other Humanities students who submitted their paper are essential elements of the assignment in the project.

The design of a student editorial board and team takes advantage of the fact that the students are collaborative responsible for the publication of the humanities journal. In the editorial they need to discuss and assess the incoming publications from humanities students. The first editorial team had to make decisions not only about the name of the journal but also about the mission of the journal and write a mission statement together. This mission gets slightly adapted by the following editorial teams.

Being responsible and being in the lead is conceived by the students as an agency. They experience having an impact on and a voice in the scientific discourse of the Humanities. The students can now apply the previously learned academic skills and transferable skills from the different programs they come from in a real academic publication setting.

## **INSTITUTIONAL EDUCATIONAL VISION**

Skills are vital in enabling individuals to thrive in an increasingly complex, interconnected and rapidly changing world (see OECD Skills Strategy 2019). The need of high-skilled employees whose profile is aligned to the evolving labour market, is growing (see European Skills Agenda 2020). Employers of today are seeking for employees trained in both domain-specific, academic skills and transversal skills such as collaboration and communication skills (as already

mentioned above). At the same time, employers increasingly report “mismatches and difficulties in finding the right people” (Modernisation of Europe’s Higher Education Systems 2011). Tertiary education in the Humanities shows an extra challenge: Humanities graduates have relatively high unemployment rates upon graduation and the mismatch between their skills and the jobs they are employed in is significant (see OECD Skills for jobs 2022 and [humanitiesindicators.org](http://humanitiesindicators.org)). Therefore, as an institution of higher education (in the Humanities), we are bound to seek for opportunities training our students in both academic and transferable skills.

At Leiden University, the current Vision on Teaching and Learning entails a relatively strong emphasis on skills training as part of their academic, personal and professional development. The university therefor identifies 13 shared transferable skills, that are found fundamental for its student body.

The shared transferable skills at Leiden University are divided into three categories: (research) skills that we use in relating to the world around us, also known as (meta)-cognitive skills; (collaborative) skills that we use in relating to other people around us, also known as interpersonal skills; and (reflective) skills that we use in relating to ourselves, known as intrapersonal skills. With these type of skills that are ideally embedded in its educational programmes, Leiden University aims to enhance the employability of its students to ensure that, as engaged citizens, students are enabled to contribute to the solutions that our societies need.

The solutions are increasingly needed for so-called ‘wicked problems’. Wicked problems generally refer to the major challenges faced by our society. Examples of these type of challenges are climate change, the loss of biodiversity loss, or social inequality. Wicked problems share three characteristics, they are *complex*; in a sense that the problems entail connections and intertwined relationships. These problems include *uncertainty*; that means that the images of the future associated with them are unclear and makes a clear forecast of the impact of the possible solutions not possible. Also, wicked problems are *ambiguous*; which means they transcend social structures and compile the needs of different groups of people, at the same time they give room to conflicts between the needs. (See Ferraro, Etzion & Gehman, 2015).

To overcome these type of problems we need a multi-faceted and multi- or interdisciplinary approach. We therefore need to offer our students multi- or interdisciplinary education. Consequently, the ambition to strengthen the multi- and interdisciplinary approach is part of our Strategic Plan (FSP) 2022 – 2027, *We are Humanities*.

Within the Faculty of Humanities at Leiden University we are trying to stimulate our scholars and teaching staff to innovate the educational programmes along the lines of the Vision on Teaching and Learning and the Strategic Plan. At a faculty level, we offer support for teaching staff for instance on pedagogy, project management or grant applications. Setting up the online journal *The New Scholar* that combines both academic and skills training is one of the projects that received support at a faculty level. The ambition of the project to train students’ skills and to let students collaborate on an interdisciplinary platform is pivotal and logical at the same time.

## THE NEW SCHOLAR

### The journal

The end product of this project is The New Scholar, an interdisciplinary peer-reviewed journal at the Faculty of Humanities of Leiden University. It has a rotating student editorial team; each issue is run by a different team of students, both Master and Bachelor students, recruited from different programs within our Faculty (Linguistics, History, Philosophy, Religious Studies, English Studies and Latin American Studies so far). The submissions we receive are manuscripts from the student output from our Faculty, from all our Bachelor and Master programs within Humanities (Linguistics, Philosophy, History, Cultural Analysis, many language studies (Russian, French, African, Chinese, only to name a few), among many others). Its mission is 'to enable pioneering academic collaborations within and among our disciplines, ranging from Philosophy to Linguistics to International Studies. Dedicated to cutting-edge scholarly practice' (Von Raesfeld Meyer et al 2023). The manuscripts can be MA or BA thesis, or assignments for a particular course.

To be considered for publication, you need to be a student at Leiden University, enrolled in a program of the Humanities Faculty, or s/he is just graduated (maximum one year ago). The students' work is written in one of the languages spoken by the members of the editorial team. As the editorial team changes every issue, the languages also change. The submission cannot be previously published. Other author guidelines are found in the journal's platform.

The online journal is fully open access (diamond). While focused on excellent papers, it is open to submissions in new media formats, including video essays, posters and infographics. This journal makes top-level scholarship highly accessible and engaging for every student.

In practice, after a first double issue and a second issue, The New Scholar has published output from students of the following Humanities Master programs:

- Ancient History,
- Hebrew and Aramaic Studies,
- History,
- Art,
- Linguistics
- Modern European Philosophy
- International Relations
- English Literature and Culture
- Museum Studies
- Asian Studies
- Classics and Ancient Civilizations

And the following Humanities Bachelor programs:

- Global and Comparative Philosophy

- International Studies
- History
- Ancient Near Eastern Studies

## Application of Collaborative Learning

Collaborative Learning requires maximal student participation, building teamwork competencies (effective communication, task delegation, group responsibility) and integrating multimodal learning interactions (peer assessment and peer feedback). For this project, a selection within the main criteria of collaborative learning was made. The next criteria within collaborative learning are considered the most relevant for the purposes of this project: give and receive feedback and make a successful planning.

- Feedback. It is expected that members of a multidisciplinary team share their comments in a constructive way, being open and understanding. The main considerations to create appropriate feedback are:
  - it needs to start with a summary with own words
  - it has to be transparent
  - it has to have an objective
  - it needs to contain improvement ideas
  - it needs to contain tips and tops
- Planning. Next components are indispensable for a successful planning:
  - Group forming
  - Bottom up schedule: Deadline is key
  - Sharing the work: coordination, content decisions, content divisions, format issues, etc.
  - Internal written/oral feedback rounds (see previous criteria)
  - End product is created as a whole, not the sum of individual parts
  -

## Zoom in Publishing skills

There are a number of publishing skills needed to participate in an editorial team. Students participating in this project need to have knowledge and insight of academic writing, peer-reviewing, copy-editing and finally publishing. For the purposes of this paper we will zoom in the peer-reviewing component. It contains three stages:

- Desk rejection
- External reviewing
- Editorial final decision

In the first stage, the desk rejection, manuscripts can be rejected based on their poor use of language, lack of referencing, wrong scope (content). This stage is carried out by the editorial team, with interactions, argumentation, and final group decision. In the second stage, external reviewers are asked to review the manuscripts which made the cut. The manuscripts are sent to the reviewers who have accepted the

invitation to review. The external reviewers, in this case, all PhD students from our Faculty, advise the editors. They select one of the following options: accept, minor changes, major changes, revise and resubmit and reject.

In the third stage, the editorial team meets again and makes a final choice based on the advice of the reviewers. The final decision is again a team effort. Effective communication and argumentation are needed. The decision is shared with the authors.

## CONCLUSION

The New Scholar aims to share knowledge, create more opportunities for collaboration, and support students' academic journeys while growing the online platform at Leiden University” (Von Raesfeld Meyer et al 2023).

When this project started, its vision was that ‘students should be able to publish and share their work, and, by doing so, to nurture the interrelationships between the diverse disciplines, subjects, and thinkers in the Humanities. This vision is what The New Scholar is striving to fulfil’(Beer, de, V., Filatova, P. & Soriano, A (2024).

These words are taken from the Editorial for the 2<sup>nd</sup> issue of The New Scholar. The student team has written it and we could not have put this in better words. This is why we add here parts of their mission statement:

*“Our mission is to facilitate an engaging and accessible exchange of multicultural, multiperspectival, and multidimensional research. In honour of the university's engagement with Asian, African, and Anglo-American cultures, as well as in recognition of the students' international background, The New Scholar aspires to sustain global awareness and diversity. We hope to enable the students to showcase their intellectual creativity and originality of thought, as well as to develop their research ideas and skills. We are dedicated to producing high-quality content that is distinguished by thoroughness, precision, and relevance”*

(Beer, de, V., Filatova, P. & Soriano, A. (2024))

Thanks to this project the students learn communicative skills and team interactions and they learn how they can participate in an editorial team, in an academic environment. Both gaps at Humanities have been successfully filled.

## Acknowledgments

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our Faculty, who dedicated their time and expertise to ensure the quality of the submitted manuscripts included in both issues.

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# CONSTRAINTS IMPLEMENTING ENGINEERING EDUCATION AND THE EFFECT OF ENGINEERING SOCIALISATION

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## ABSTRACT

*In the Swiss curriculum for compulsory school engineering education is predominantly integrated into subject compounds like textile and technical design or nature and technology. Engineering itself as a content area is hardly taught in teacher education programmes. Therefore, this study attempts to contribute to the question how engineering topics are integrated into teaching. Based on the Rubicon model of motivation and action and with reference to pedagogical research, data on student teacher beliefs about constraints implementing engineering education and student teacher engineering socialisation were collected. Regression analyses reveal that engineering socialisation is weakly related with the implementation of engineering content. Results point toward a need of more intra-school support from colleagues and better quality equipment in order to promote engineering in classrooms. Also, a gender effect is evened out by the two desires. In terms of teaching praxis we suggest to establish communities of practice in schools and support teachers with material and pedagogical examples for engineering content.*

## BACKGROUND

In the Swiss curriculum for compulsory school engineering education is predominantly integrated into subject compounds like textile and technical design or nature and technology. Engineering itself as a content area is hardly taught in teacher education programmes. This may have the effect that teachers refrain from implementing engineering content. This paper investigates reasons for non-

implementation using exogenous and endogenous variables and operationalises an intention for implementation as a dependent variable.

## **THEORY**

### **Potential constraints for engineering education implementation**

In the planning of lessons, obstacles can become relevant that counteract with the implementation of learning content. Often, the obstacles refer to the teaching material. Other obstacles can be the readiness of the student/ teacher or factors such as the time required or the individuals' own conviction to carry out the lesson in the desired way.

In science education research several factors for non-implementation of content and methods have been identified. These factors mainly refer to exogeneous (deficit in material, curricular restrictions, student problems...) and endogenous factors (lack of methodological knowledge, low pedagogical self-confidence...) and cause barriers that may stop teacher from bringing in new content or forms of teaching (Krämer et al., 2012; Peschel & Koch, 2014; Umar & Hassan, 2015; Höhnle & Schubert, 2016). One very special endogenous variable is what I here call the engineering socialisation.

### **Engineering socialisation**

Socialisation is deeply rooted in the individual and can thus also become a personal obstacle that is decoupled from contextual obstacles. Hurrelmann (1986) describes socialisation as socially and historically contextualized phenomenon that develops in confrontation with other persons (social) and is dependent on previous experiences (historical).

Decisive factors in socialisation are the parental home, school and the circle of friends (peers) or the differentiation from others (Mead, 1968; Andersen et al., 2002; Schapp, 2012). In relation to engineering socialisation, the home, school, university, vocational training and circle of friends can be identified as socialising contexts that influence the development of interests and identification with engineering (c. f. Pfenning, 2013). Thus, socialisation plays a significant role in the development of identity and, consequently, of self-efficacy, attitudes and interests in engineering-oriented fields and can be understood as a further determinant of behavioural or actional outcomes (Mammes, 2004; Renn et al., 2009).

To date, socialisation has hardly been a topic interest in engineering education research. Many studies refer to engineering identity formation, engineering identity as a professional characteristic of individuals or engineering socialisation as a phenomenon of career development. I did not find studies that consider deep rooted aspects and wider contexts in which socialisation takes place and how it affects engineering teaching processes. What seems clear is that socialisation plays an important role in the development of identity and the associated self-efficacy, attitudes and interests in engineering-oriented education (Mammes, 2004; Renn et

al., 2009; Ardies et al., 2015; Adenstedt, 2016). In a neighbouring field – technology – the role of general technology socialisation (Mishra et al., 2018) and technology education in teachers (Hansen, 1995) have been addressed.

### **Implementation intention: The Rubicon model**

The Rubicon model of action phases (H. Heckhausen & Gollwitzer, 1987; Achtziger & Gollwitzer, 2007) is a general volitional-motivational process model for describing action initiation. Actions are considered to be carried out on a reflected background and are preceded by a decision to implement the action. So, the model specifies that actions are only carried out when a volitional-motivational-based intention is formed (van Hooft et al., 2005).

The central aspect of the Rubicon model is the intention that leads to a certain action being pursued. If one also considers that the implementation of the action also depends on the situation in which the action is to be carried out (Beckmann & Heckhausen, 2006; H. Heckhausen & Heckhausen, 2006), then the intention to implement is particularly important. For example, van Hooft et al. (2005) argue that goal-oriented actions have a higher chance of being carried out due to the implementation intention than merely intention-based actions. Thus, intentional and planned intentions can support the execution of actions (c.f. Ajzen, 1985).

In the work of van Hooft et al. (2005) it is shown that the intention to implement an action (implementation intention) correlates strongly with the behaviour shown itself, but the implementation intention is also related to self-efficacy and the perceived control of one's own actions. Westaby (2005) arrives to a similar conclusion and shows that the intention to carry out an action can largely be explained by three aspects: The perceived control, norms and attitudes of the person, as well as contexts of justification which are in favour and against the action. These findings emphasize the importance of self-related beliefs in intention-building.

### **METHODS**

A questionnaire was given to 69 student teachers (68% primary school, 32% lower-sec) in a compulsory class on educational research (therefore, engineering interest was not a confounding factor).

The questionnaire had a closed response format, all statements were to be rated on a five-point Likert scale (0=does not apply at all - 1 - 2 - 3 - 4=applies completely).

A total of 31 items were submitted: 23 items on anticipated barrier to engineering-oriented teaching (e.g. the class size is too large; the spatial equipment is inadequate; I have too few opportunities for professional exchange among colleagues), 4 items on engineering socialisation (e.g. engineering already played a role in the family during childhood) and 4 items on the intention to implement engineering-oriented teaching (e.g. I have already decided for myself that I will promote engineering-related learning in my lessons).

The barrier items were inspired by Peschel & Koch (2014), but had neither been explored in terms of dimensions nor in terms of internal consistency, yet. Thus, we performed exploratory component analyses on the items to find independent content classes of barriers.

The items to assess engineering implementation intention were adapted from van Hooft et al. (2005) and the newly constructed items to assess engineering socialisation were scaled using confirmatory factor analyses.

### *Exploratory data analyses*

IBM SPSS 24.0.0.1 and MPlus 7.3 were used for statistical data analysis. First, exploratory principal component analyses (varimax rotation, Kaiser criterion) were calculated and multiple loading items were eliminated. The cross-loadings should not exceed  $\alpha=.32$  (Tabachnick & Fidell, 2001). The item selection was thus carried out to improve component orthogonality, resulting in a final, three-dimensional solution of the reasons for the obstacles:

- Lack of school internal and collegial support ( $\alpha=.79$ , AM=1.62, SD=.86, 4 items)
- Deficits in general teaching material ( $\alpha=.93$ , AM=2.51, SD=1.05, 2 items)
- Student-related obstacles ( $\alpha=.62$ , AM=1.49, SD=.96, 3 items).

### *Confirmatory data analyses*

One-dimensional, confirmatory factor analyses were performed for engineering socialisation:  $\alpha=.78$ , AM=1.49, SD=.84, 4 items,  $X^2(2)=2.117$ ,  $p=.347$ , RMSEA=.04, CFI=.99; and for the intention to implement engineering in the classroom:  $\alpha=.64$ , AM=1.97, SD=.79, 4 items,  $X^2(2)=.857$ ,  $p=.652$ , RMSEA=.00, CFI=1.0.

The dimensions of the obstacles were computed as uncorrelated and z-standardised regression factor values. Correspondingly, the correlations of the obstacles were fixed at zero. This standardisation makes it easier to interpret the explanatory value of the dependent variable in relation to the respective predictor, as it excludes multicollinearity (Field, 2013).

### *Descriptive statistics*

Looking at the scale mean values between the two groups in the sample (Table 1), one can see that primary school student teachers perceive a higher lack of school internal and collegial support as compared to the lower-secondary school student teachers. A large gap is also found in the rating of student-related obstacles, which seems to more of a problem for the lower-secondary school group. However, the intention to implement engineering education is higher in the lower-secondary group. It is, unfortunately, a drawback of my study that there are no data available about the subject background of the lower-secondary students. But sampling of the group suggests that school subject are a random factor and thus neglectable in the interpretation.



**Table 1**

Scale average scores and standard deviations between groups

Construct	Primary school student teachers AM (SD)	Lower-secondary school student teachers AM (SD)
Lack of school internal and collegial support	2.73 (0.85)	2.43 (0.86)
Deficits in general teaching material	3.49 (0.98)	3.57 (1.2)
Student-related obstacles	2.22 (0.87)	2.98 (0.95)
Engineering socialisation	2.94 (0.72)	3.02 (0.91)
Intention to implement engineering education	2.25 (0.68)	2.99 (0.93)

## RESULTS

The exploratory component analyses suggested that barriers can be subdivided into three dimensions: Lack of school internal and collegial support, deficits in general teaching material at the school, and student-related obstacles. Differences between the two groups (primary school and lower-secondary school student teachers) are small (see section on descriptive statistics above).

### *Correlation analyses*

First, the Pearson correlations of the factored scales were inspected (see Table 2). As indicated in the methods section, the correlations between the barriers are fixed at zero. The intention to implement engineering education shows a statistically significant, negative correlation with a lack of personal support within the school ( $r = -.47^{**}$ ) and a general deficit in the teaching material at the school ( $r = -.45^{**}$ ). The lack of facilities also correlates significantly and negatively with technology socialization ( $r = -.50^{**}$ ).

**Table 2***Pearson correlations*

Construct	(1)	(2)	(3)	(4)	(5)
(1) Lack of school internal and collegial support		.44**	.31*	-.46**	-.02
(2) Deficits in general teaching material	.00		.24	-.48**	-.40**
(3) Student-related obstacles	.00	.00		-.13	.25
(4) Intention to implement engineering content	-.47**	-.45**	.04		.31*
(5) Engineering socialisation	-.03	-.50**	.41**	.47**	

Notes: Anmerkungen: \* $p < .05$ ; \*\* $p < .01$ ; Above diagonal: Correlations of scale mean scores:  $N_{\text{Sample(AM)}} = [57; 62]$ ; Below diagonal: Correlations of regression factor scores (z-standardised & barriers uncorrelated):  $N_{\text{Sample(Fac-Reg)}} = [42; 59]$ ;

With regard to the mean correlations, the picture is conceptually identical, but the correlations between the barriers are in part statistically significant. In addition,

the correlation between student-related obstacles and engineering socialisation is statistically significant.

Disregarding this individual variability, the correlations prove to be comparable. In terms of content, the correlations show that a reduction in obstacles is accompanied by an increase in the intention to implement engineering education. engineering socialisation also has a significant positive correlation with the intention to implement engineering ( $r=.31^*/.47^{**}$ ): If engineering played a role in the family, but also at school, during youth, opportunities to integrate engineering-related content are more likely to be seen.

### *Regression analyses*

Three consecutive linear regression analyses were performed to explain the implementation intention (see Table 3); the first controlling for gender, the second adding barriers and last adding engineering socialisation. As gender and school level correlate with  $\Phi=.66$  ( $X^2(1)=29.667$ ,  $p=.000$ ) I decided to just control for gender, Yet, gender seems to be as relevant with regard to socialisation as is school level, because in both cases one can assume strong socialisation effect, gender as a social peer group variable and school level as a university student teacher peer group variable.

An initial gender effect was levelled out after the barriers were added. There were significant effects of support in school and the quality of material: if both were improved the implementation increases. Neither student-oriented barriers nor engineering socialisation had significant effects.

**Table 3**

*Linear regression analyses, dependent variable "Intention to implement engineering education"*

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
	<b><math>\beta</math> (SE)</b>	<b><math>\beta</math> (SE)</b>	<b><math>\beta</math> (SE)</b>
Intercept	3.27 (.22)***	3.09 (.24)***	2.92 (.22)***
Gender (0=male, 1=female)	-.29 <sup>+</sup>	-.13	-.00
Lack of school internal and collegial support		-.35*	-.37**
Deficits in general teaching material		-.47**	-.35*
Student-related obstacles		-.01	-.11
Engineering socialisation			.29
$R^2/R^2_{\text{corr}}$	.08/.06	.38/.32	.42/.34

Notes: Predictor variables are z-standardised factor scores,  $\beta$ = standardised regressions coefficient, SE= standard error of constant,  $R^2/R^2_{\text{corr}}$ = (corrected) variance explanation, + $p<.10$ , \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$

For exploratory reasons I also ran a second regression model with school level (primary school teacher vs. lower-secondary school teachers) as a control variable

instead gender. The results were almost identical, except that school level as a single predictor had no effect ( $p=.229$ ) in the first model.

## DISCUSSION

Despite the small sample, the most striking findings were the levelling out of a gender effect in engineering implementation intention when barriers were added to the regression model and the zero effect of engineering socialisation.

The results show that barriers explain roughly third of the variance in the intention to implement engineering topics. Engineering socialisation does not contribute a statistically significant explanation of variance. The results also indicate that it is not due to variables inherent to the classroom, such as the number of pupils or their preparation or discipline. Rather, it is the staff, the collegial support and the facilities at the school that are relevant. This means that support from the teaching staff could help to teach more technology. However, this in turn depends on the extent to which colleagues can help with implementation. In principle, however, there is uncertainty on the part of prospective teachers and support would be desirable from their point of view.

As the gender effect is evened when the barriers are considered, one may conclude that engineering topics need professional support from educational experts in the field of engineering education.

In terms of teaching praxis we suggest to establish communities of practice in schools and support teachers with material and pedagogical examples for engineering content.

In addition to the general results, it was shown that, from a pedagogical perspective, it should not make much difference whether the implementation takes place at primary school level or at lower-secondary school level. Similarly, the ratings between school levels do not differ in terms of how the student teachers in the sample perceive the quality of the material or the demand for support from the colleagues and staff.

However, the differences in engineering socialisation and student-related obstacles are noteworthy. Lower-secondary student teachers state that they are more socialised with engineering than primary school student teachers, and they see significantly higher student-related obstacles. This finding means that lower-secondary student teachers are more likely to refrain from incorporating engineering education in the classroom because of the students. In a further interpretation, this could indicate that an understanding of engineering (whether in terms of content or handling) and a subject-oriented self-attributed competence to teach engineering play a role and need to be addressed in further studies.

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# USE-INSPIRED EMPATHY ASSESSMENT AND EFFECTS OF SUPPORT IN K1-4 CHILDREN

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## ABSTRACT

*Empathy is an important skill that enables every person to put themselves in the perspective of others and understand their emotions. Particularly in the context of education, the development of empathy skills in K1-4 children (age 4-9 years) can be crucial to creating a positive social climate and promoting individual and social development as well as achievement and success. Most research approaches to empathy in kindergarten use qualitative or observational methods. This study investigates the potential of shortened versions of validated scales. We adapted the German questionnaire “FEAS” to assess empathy and appropriate social behaviour and the empathy scale used in TIMSS 2007. Results indicate that short versions can be adopted by teachers to practically estimate empathy in very young children. Yet, more research is needed to rigorously validate the short scales. The short instruments may help teachers to initiate research on their own teaching and to get a quick impression of the status of their children in order to decide about the necessity of additional education on a group level. In this context we also want to discuss the relevance of empathy knowledge of teachers and empathy education in young children.*

## BACKGROUND

In education, the socio-emotional development in kindergarten children seems to form a background for a child's prosperous and successful future (Raver, 2004; Halle & Darling-Churchill, 2016). The particular development of pro-social skills in children can be crucial to creating a positive social climate and promoting individual and social development as well as school success (Raver, 2004). On this background, the construct of empathy seems to be a prominent variable of interest in terms of social behaviour and its development in pre-school children. Yet, looking at the assessment of empathy in kindergarten and elementary school, the number of research papers plummet when the focus is drawn towards direct self-report measurement. Many researchers use indirect assessment strategies such as



observation of child behaviour and interaction, participation in social environments or asking teachers about how they perceive the level of empathic competence in individual children. Sometimes even parents and other peers are taken into consideration. Questionnaire-based assessments seem to be rare. One reason for this may be the methodological complexity: kindergarten and elementary children struggle with reading and understanding questionnaire items by themselves and thus need extra support in answering the questionnaire items. Despite these methodological issue, one major advantage of direct self-report assessment can be the economy of a survey to receive an impression on a group level as well as the comparability through standardised assessments on the long run. Adequate instruments will then assist teachers and any other supporting staff in the classroom to sense the state of social or emotional development, adapt education and initiate exercises if a deficit is identified (Brenchley, 2017).

In this paper we want to address the issue of a quantitative approach to measure empathy in kindergarten directly in children. We want to base our approach on existing measures in terms of an adopt, adapt and improve manner (see methods section below). Our research aims to provide a first step towards answering the following two questions:

- How can one assess empathy in K1-4 children?
- What is the level of empathy in K1-4 children?

We will first refer to empathy and its basic dimensions, elaborate on empathy assessment methods in general, relate this to K1-4 education and give examples how empathy has been assessed in the context of German research. In the methods section adapted versions of two existing approaches are explained, which were also tested in K1-4 classrooms.

## EMPATHY

Affective response, self-other awareness, emotion regulation, perspective taking, compassion, empathic attitudes and even more constructs have been used to describe empathy and make the phenomenon empirically tangible (Klimecki, 2019).

Empathy – in a global sense – defines the ability and willingness to consider the feelings and thoughts of others. This includes the thought processes, motives, feelings, personality traits and emotions of this person such as affect or perspective taking (Kanske et al., 2016). If a person is empathic, he or she is also able to respond appropriately to the emotions of others. This makes empathy a social competence which is responsive to another person's feelings or thoughts (Eisenberg et al., 2006).

In many cases, empathy has been defined and empirically modelled as a two-dimensional intra-personal construct plus one responsive inter-personal construct. With this we mean that most research define the two intra-personal constructs *affect* and *cognition* (see for example Brems, 1989; Cuff et al., 2016; Agnieszka Lasota et al., 2020; Chen et al., 2021). Others use similar constructs such as empathic concern

and perspective taking (Delgado et al., 2021; Pang et al., 2022). Other works additionally differentiate between those intra-personal modes like attitude, awareness, regulation and perspective taking on the one hand and interpersonal responses (Eisenberg et al., 2006; Lietz et al., 2011).

We refer to empathy as a three-dimensional construct including affect, cognition and responsiveness of prosocial concern (Frey & Bos, 2012; Berliner & Masterson, 2015; Cuff et al., 2016; Herrera-López et al., 2017; Weisz & Cikara, 2021). Affect and cognition describe intra-personal, mind-oriented characteristics of an individual. The responsiveness of prosocial concern comprises an action-oriented expression of the internal state.

### **Affect**

Affect and emotions enable a person to have compassion, mood transference and helping impulse. It is the ability to feel the same as others and to respond instinctively to their feelings. It is also called emotional sensitivity. Compassion is important for good social relationships, which are based on trust and attachment (Klimecki, 2019).

### **Cognition**

The ability of perspective taking involves being able to distinguish and understand another person's point of view and intentions from one's own. This is not just about empathy, but more about the cognitive thinking process, which enables a person to imagine the thoughts of another person and, therefore, can be considered as a basis for affect or empathic concern (Warren, 2018).

### **Responsiveness of prosocial concern**

The way empathy is expressed in combination with appropriate action determines an empathic response. If a person can anticipate the consequences of his or her own behaviour as well as that of others, the significance of his or her own actions becomes clear (Hinnant & O'Brien, 2007; c.f. Berliner & Masterson, 2015). This type of “empathy-related responding” (Malti et al., 2016, p. 719) includes affective and cognitive states, and acts them out in a response.

## **EMPATHY ASSESSMENT METHODS**

Assessing empathy, as has been stated above, needs to incorporate a multidimensional perspective, and requires a focus on a specific sample. To date one can find many empathy assessment methodologies. Qualitative approaches try to assess empathy indirectly by asking teachers, parents, relatives or peers about the empathic competency of a child or a person (c. f. Kim, 2017). Direct ways include participation and/ or observation of an individual's behaviour (ibid.) or task tests which allow to infer a level of empathy through the performance in a task. There have also been standardised quantitative self-report approaches in empathy assessment.

Lietz et al. (2011) used an all self-report statement questionnaire with items like “Hearing laughter makes me smile” for affective response, or “I can imagine what it’s like to be in someone else’s shoes” for perspective taking. In the next section we want to narrow the question of empathy assessment from a general view down to the question of what prerequisites need to be met in order to measure empathy in K1-4 children, with reference to their cognitive and language competences in particular.

## **EMPATHY IN (PRE-) PRIMARY SCHOOL**

*“If a child views a sad person and consequently feels sad (even though the child differentiates his or her own and the other person’s emotional states or situations at a rudimentary level), that child is experiencing empathy.” (Eisenberg, 2000, p. 671)*

The quote from Eisenberg (2000) indicates that an empathic child interprets and relates to the feelings of another person. Previous studies have shown that primary school children are able to recognise and respond to emotions in others. However, a recent study by Longobardi et al. (2019) found that the empathy skills of primary school-aged children are highly dependent on individual differences. The researchers found a gender effect for empathic concern, prosocial behavior and perspective taking in favour of girls. There is also evidence that empathy skills can be further improved during the primary school years if appropriate exercises/ education are conducted by teachers (Gershon & Pellitteri, 2018; Soliman et al., 2021).

### **Developmental considerations for empathy assessment tool construction in (pre-) primary school children**

The use of standardised measurement tools to assess children's empathy attitudes skills can help to increase the comparability of research findings and assess the effectiveness of exercises to improve children's empathy skills (Soliman et al., 2021). In addition, measures of empathy can assist teachers and parents to help children develop their social-emotional development and their capacity for empathy and prosocial behaviour (Brenchley, 2017; Eisenberg, 2000).

Despite the advantages of having an empathy assessment tool, there is also a demand for appropriate assessment tools (Reid et al., 2013). Most questionnaires are designed for literate individuals. With reference to the developmental stage of K1-4 children one needs to consider their particular prerequisites in order to arrive at reliable and valid results (c.f. Malti et al., 2016). Many times it is argued that self-report of small children is not reliable (c. f. Brenchley, 2017). Unfortunately, most research using questionnaires with small children remain unclear of how their instruments were developed in order to make it suitable for small children. Therefore, we want to elaborate on the most important aspects which we identify as essential in the development of our assessment tools to obtain optimal data from the small children. Looking at the design of standardised assessment tools, we determine reading competency, abstraction capability and attention as key aspects to consider in the design of an assessment tool and the methodology the tool is deployed.

### *Reading competency*

The reading competency is a key aspect that needs to be considered whenever using standardised assessment methods with small children. As one cannot assume that the reading competency in K1-4 children is on a level of adolescents one needs to adapt the wording and the rating scale descriptions in a sensitive and sensible way. In terms of sensitivity one should consider the perspective of the children in the use of word. Sometimes children do not see the same differences in words as adults do. In terms of sensibility descriptions of situations should be aligned to a child's world which may be more straight forward and more oriented to the "real world" of a child as they perceive it.

### *Abstraction capability*

The ability to abstract demands particular consideration (Harter, 1999). Abstraction refers to both, the situation that is given to the child for evaluation as well as the rating scale that is used for evaluation. A situation can be presented in an abstract manner or in a practical situation, e.g. a story. The abstract option is very often used in questionnaire assessment methods in which items describe a generalised situation. For example, an item could be worded like "When I see a sad person, I also feel sad" represents a generic and abstract situation, whereas situationally elaborated items like "Peter and Mary both build a tower with blocks and Peter's tower collapses. How does Peter feel?" represents a realistic example of a situation.

### *Attention*

Attention and the amount of focus time in small children is much more limited as compared to older children. This sets the foundation to change the way questionnaire items need to be presented to the children. Additionally, on the one hand, more effort has to be made to explain situations and clarify rating scales to small children. On the other hand, long-winded descriptions eat up a lot of concentration, long explanations may reduce the motivation to answer.

## **Research questions**

Our research questions draw on the potentials of empathy education as measured by teacher self-reports. We attempt to explore and compare adapted versions of Meindl's (1999) and Bos et al.'s (2012) questionnaires to measure the empathy ability of students in kindergarten and primary school.

We do not intend to measure specific dimensions, but all measures rely on the three-dimensional definition of empathy given above. With this we target a practical approach for use in classrooms instead of a factor analytical approach.

1. How can one assess empathy in K1-4 children?
  - What instruments do exist?
  - How do existing instruments need to be adapted?

- How do our adapted instruments perform practically?
- How do our adapted instruments perform diagnostically?

## 2. What level of empathy does one find in K1-4 with reference to a norm sample?

We want to relate the first question to German instruments, because the context of our research is located in German-speaking schools in Switzerland. All translation work in this paper is thus just to make the research understandable, but it was no issue in terms of proper language adaption within the instruments.

## METHODS

### Existing German instruments and adaptations

#### *One situational and one rating-scale in the original*

The Meindl (1999) questionnaire assesses empathy and pro-social behaviour at 12-15 years with 15 short everyday situations in which people interact. 30 items measure empathy (cognition + affect) and 16 measure appropriate social behaviour (46 items altogether). An example is given in Figure 1 below. It shows a situation at the top and provides four items on which the children can indicate how they perceive the people the situation and how they feel.

**Figure 1**

*Example item from original (left) and translation (right) taken from Meindl (1999)*

<p>1. Fritz trifft seinen Freund Jochen auf der Straße und zeigt ihm seinen neuen Fotoapparat, den er von seinen Eltern geschenkt bekommen hat. Jochen bittet Fritz, ihn auch mal ausprobieren zu dürfen. In dem Moment, als Jochen fotografieren will, stolpert er. Der Fotoapparat fällt zu Boden und geht kaputt.</p> <p><u>Fragen:</u></p> <p><b>Wie fühlt sich Fritz, als er sieht, dass sein Fotoapparat kaputt ist?</b></p> <p><input type="checkbox"/> Er ärgert sich, weil sein Fotoapparat kaputt ist.</p> <p><input type="checkbox"/> Es macht ihm nichts aus, weil er von seinen Eltern bestimmt noch mal einen Fotoapparat geschenkt bekommt.</p> <p><b>Wie fühlt sich Jochen dabei?</b></p> <p><input type="checkbox"/> Er fühlt sich unschuldig, weil er den Fotoapparat nicht mit Absicht kaputt gemacht hat.</p> <p><input type="checkbox"/> Es ist ihm peinlich, dass er den Fotoapparat kaputt gemacht hat.</p> <p><b>Wie würdest du an der Stelle von Fritz reagieren?</b></p> <p><input type="checkbox"/> Ich würde Jochen anschreien, weil er nicht besser auf den Fotoapparat aufgepasst hat.</p> <p><input type="checkbox"/> Ich würde sagen, dass es mich ärgert, aber dass ich Jochen nicht böse bin, weil er ihn nicht mit Absicht kaputt gemacht hat.</p> <p><b>Wie würdest du an Jochens Stelle reagieren?</b></p> <p><input type="checkbox"/> Ich würde mich entschuldigen.</p> <p><input type="checkbox"/> Ich würde sagen, dass sich Fritz nicht aufregen soll, weil es ja schließlich keine Absicht war.</p>	<p>Fritz meets his friend Jochen. Jochen tries Fritz' new camera and accidentally drops it.</p> <p><b>What are Fritz' feelings?</b></p> <p><input type="checkbox"/> He is annoyed</p> <p><input type="checkbox"/> He does not mind</p> <p><b>What are Jochen's feelings?</b></p> <p><input type="checkbox"/> ...</p> <p><input type="checkbox"/> ...</p> <p><b>If you were Fritz, how would you react?</b></p> <p><input type="checkbox"/> ...</p> <p><input type="checkbox"/> ...</p> <p><b>If you were Jochen, how would you react?</b></p> <p><input type="checkbox"/> ...</p> <p><input type="checkbox"/> ...</p>
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The Meindl-questionnaire was normed and validated for 147 12-15 years old adolescents in 1999. Due to the developmental stage of young adolescents, the norm was based on T-values that correspond to a 50<sup>th</sup> percentile rank (T-value= 50) which corresponds to a very high achievement rate (see section data analysis below).

Bos and colleagues developed a scale for 9-11 year olds which was used in the Trends in International Mathematics and Science Study (TIMSS) 2007 and 2015 (Bos et al., 2012; Frey & Bos, 2012; Wendt et al., 2017). The four-item self-report is rated on a four-point scale: "3= Absolutely correct --- Not correct at all=0" (see Figure 2).

**Figure 2**

*Translated version of the Bos et al. (2007) self-report items*

<b>How do you feel when other people are unwell?</b>				
	Absolutely correct	Fairly correct	Rather not correct	Not correct at all
It depresses me when I see someone being laughed at.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It takes a lot out of me when I see someone crying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel compassion for people who are worse off than me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel sorry for children who are often teased.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The empathy scale was found to be reliable in 2007 with AM= 6.72, SD= 2.77, Cronbach-alpha = .86 (n= 4'334; Bos et al., 2009); in TIMSS 2015 no scale statistics were available, but the sample size for the identical items was n= 2'400 (see Wendt et al., 2017).

#### *Adaption of the situational questionnaire and the self-report rating scale*

The Meindl-questionnaire was considered too long and too much for the cognitive capacities of K1-4 children. So, we shortened it to six items for empathy and five for appropriate behaviour with a focus on maximum variance in the items. The selection was based on content inspection and two primary school teachers evaluated the difficulty and similarity of the situations. One easier, one intermediate and one rather difficult situation was chosen in order to replicate the full range of variance and empathy competence of the children. Unfortunately, in a first test we found that still some items were too difficult and hard to explain to the small children. Thus, based on this first feedback, we reduced the items down to three by each dimension.

The Bos-items were rephrased in a simplified manner and each item received a short context storyline to make it better understandable and situationally feasible for the children. The four-point rating-scale was retained.

Besides children, also teachers were asked how much empathy education they do with the children and what their belief is about the efficacy of empathy exercises.

#### *Data analysis*

The shortened Meindl-questionnaire scores were weighted in relation to the original number of items to estimate a value comparable to the original, i.e. we extrapolated individual scores in order to make them comparable to the Meindl-validation sample and compute T-values. In the original test, most individuals perform very well and receive high test scores. The norm sample is used as a comparison against a test



sample and from the norm sample one can infer what an average (even though high) test score should be. Therefore, T-values derive from the 50th percentile rank of the norm sample which equals a standardised T-value of 50 with a standard deviation of 10. Any T-values below 40 are commonly considered as below average. In terms of the Meindl-questionnaire this would mean in the original questionnaire on the empathy dimension a maximum score of 30 could be reached, because of 30 items. In the norm sample the T-value of 50 equals a score of 27, which in turn is the score that is needed to achieve an average level of empathy. The maximum score on the appropriate social behaviour dimension is 16, the T-value of 50 corresponds to a score of 14.

In our study we used a strongly reduced Meindl-questionnaire and handed out only three situations. In order to arrive at T-values we had to extrapolate the data by a factor of 10 for empathy and a factor of 16 for appropriate social behaviour. This limitation will be addressed in the discussion section.

### **Sample and descriptive information**

52 children were assessed (44% female) in four classrooms which were within the range of K1-4 (1 K1-2, 1 K2, 1 K3-4, 1 K4). The class sizes varied between 9 and 17 children (average class size = 17) and half of the classes were grade-mixed classes. No special issues were reported about empathy deficits or special needs children in any of the classrooms.

One teacher was male, three teachers female. One teacher hardly considered empathy in every-day instruction (once per semester), one teacher once per week. One teacher reported no belief in the effect of education toward empathy at all, three teachers reported about positive effects of empathy education in their classes.

## **RESULTS**

All empathy scores were at a normal level, the children scored weighted T-values between 62 and 59 ( $SD=[14;18]$ ; all above the critical threshold of 50. The Bos-scale sum score averaged at 11.4 ( $SD=1.52$ ) which is close to the maximum of 12.

There was no age effect within the Bos score. Younger children scored higher than older children on the Meindl-scale, except the class with the teacher that did not believe in an effect of empathy education. Yet, this class scored the highest in empathy and social behaviour and had the oldest children in the sample.

In terms of reliability the Bos and the Meindl empathy scores correlate significantly ( $r=.32^*$ ).

## DISCUSSION AND PRACTICAL IMPLICATIONS

We tried to adapt two reliable and validated empathy assessment instruments to young children in K1-4. This meant to further develop the methods of administration. Small children need much more guidance as compared to adolescents or adult people. Unfortunately, we could not refer to statistics of the Meindl-questionnaire in order to evaluate the quality of items in the instrument. Thus, we approached the instrument from a teacher experience perspective and made adaptations based on the major limitations of small children. The assessment was changed with regard to the children's developmental stage in reading competency, level of abstraction and attention.

The results of the empathy values are within a regular range, all above a T-value of 50 in the situational questionnaire and an average sum of 11.4 in the Bos-scale. These results reflect an expectable outcome, because there were no special issues reported about empathy deficits or special needs children in the classroom.

The weighted estimates and correlations suggest that the short versions can be of practical use, yet with the limitation of a higher degree of error due to the weighted estimation in the situational questionnaire.

We need to say, that the instruments thus do not represent diagnostic tools, but rather practical tools for teachers to evaluate empathy and progress in class; a more rigorous study is needed to assess the validity. In terms of validity, we also want to discuss how one can transfer T-values from an adolescent sample to children at the age of elementary school. In this paper we assumed that the same T-value threshold apply. This assumption can be challenged in a context of early childhood development and (methodologically) in terms of reliability of the results. Perhaps, a repeated measures design may find a within-child variance in the results instead of a rather constant score. This, in turn, raise the question of state-trait properties of empathy, an issue we could not consider in this research.

Besides methodological and theoretical issues, a concise empathy assessment can be of high value in practical terms. For teachers, our short versions can be used to get a quick impression of the status quo in order to decide about the necessity of more or less empathy education. Even more, the instruments may help teachers to better understand empathy, decide about the necessity of additional education on a group level. The results can also be used in terms of empathy development by child maturation over the course of pre-school, elementary school and primary school education.

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# FACTORS FOR MOTIVATIONAL WORKPLACE LEARNING EXPERIENCE IN VET STUDENTS

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## ABSTRACT

*In school we value a positive learning experience of our children. After school, when the young adults first enter the labour market, few is known about what has a positive effect on the learning experience in vocational educational training (VET) and professional education at the workplace. In particular, German-speaking VET is divided into academic learning at school and practical learning in the workplace. In this paper I show a study that investigates motivational correlates of a positive VET learning experience sensu flow. Results show that the support of individual achievement motivation and feedback from supervisors and the company are the most strongly associated factors with a flow-like experience. Abstract factors like collegial esteem and future workplace security are not directly associated with a positive experience. In practical terms VET education can now focus on teaching quality, competence orientation and task development. One may also use the results to re-advertise VETs in jobs that face a loss of applicants.*

## BACKGROUND

Vocational Educational Training (VET) and learning in German-speaking countries is split up into learning theory and professional competences in school on the one hand, and learning and applying professional competences in a workplace-oriented context within a company on the other hand. Thus, research in VET education needs to consider two perspectives of the educational experience: vocational school learning and workplace-specific learning.



In terms of vocational school learning, instruction and learning are comparable to education in general schools and general educational theory and pedagogical mechanism can be applied to describe learning processes, instructional methods or cognitive/ affective/ motivational outcomes. Within a framework of positive psychology and positive learning experience constructs like learning motivation draw on subjective well-being, namely that a higher learning effect occurs in optimally set up teaching arrangements with optimal tasks. This relation also depends on the quality of the learning arrangement and has ever since been subject to research in teaching quality or the effect of teacher-related instructional set-ups (for example Kunter et al., 2013; Sandilos et al., 2014; Dorfner et al., 2018; Praetorius et al., 2018).

With reference to the workplace a learning and instruction perspective is rare. One reason may be that VET systems differ strongly between countries. This makes it harder for research to find a common ground for discussions of workplace VET learning. Another reason may be that workplace learning partly comprises a research field in the area of knowledge management within organisational development and human resource management which do not share an instructional-pedagogical approach and thus lacks pedagogical research.

Within a framework of organisational learning, employee satisfaction and productivity, organisational and work psychology has put a focus on how individuals can perform best within their company. Based on a person-environment fit theory, it has been posited that the better an individual's characteristics and preferences fit with an institutional environment and philosophy, the higher the employee's satisfaction will be. This, in turn, is related to an individual's well-being and can result in increased work motivation, or (in VET education contexts) learning motivation respectively; possibly even in a positive and pleasurable experience or a flow-like experience (Sweller et al., 1998; Vollmeyer & Rheinberg, 2000; Amiot et al., 2006; Aronson et al., 2008).

In terms of good quality learning and persistent/ efficient work with simultaneous subjective well-being, satisfaction, and positive experience, goals, desires, and needs of the employee/ trainee play important roles (c. f. Herzberg et al., 1959; Locke & Henne, 1986; Deci & Ryan, 1990). Therefore, in this paper I ask what quality-oriented factors relate to a positive educational experience in the VET workplace learning. This is also an attempt to bring together pedagogical, psychological and organisational research with the goal to find results that may improve the instructional quality of VET workplace learning.

In this paper I will argue that needs and values of learners can be translated into learning-context oriented categories and that a match between desire and situation equals a fit which is motivational. This will be related to instructional quality at the workplace and empirically assessed with a newly constructed standardized assessment instrument.

## **THEORY**

### **Motivational factors in the workplace**

In the VET workplace, factors such as support, responsibility, learning potential, challenge, and variation of tasks are particularly conducive to flow experience and can result in positive work experience and satisfaction (Csikszentmihalyi, 2004; Rau & Riedel, 2004). However, the social environment also contributes to the attractiveness of the workplace and, at the same time, to the quality of (work) life (Dhamija et al., 2019); the social environment conveys values that have an influence on the perceived prestige of the workplace, and an activity becomes more attractive if it is considered meaningful by society (Csikszentmihalyi, 2004, 2008). Besides external social aspects, experiencing pleasure at work affects the quality of interactions with superiors, colleagues, or customers. These interactions and the feedback are central to positive experiences. In this respect, organizations should create working conditions that make it easier to experience positive feelings, to work with joy, and to develop oneself. Clear objectives as well as appropriate and unambiguous feedback are prerequisites for this.

Overall, a positive-emotion-promoting work environment should not only focus on professional expertise, but also give VET students the opportunity to develop their social skills and to gain wisdom and self-knowledge, so that they feel joy at work, can perform qualitatively well, and increase their quality of life (Altmann, 1992; Csikszentmihalyi, 2004, 2008). Thus, the subjective perception of work is closely related to individual motivation and job satisfaction (Weinert, 2004; Buitendach & Rothmann, 2009); and positive experience and satisfaction may also have a positive effect on self-efficacy, lower drop-out rates from VET education and help build a proactive future workforce.

### **Instructional quality and satisfaction in the workplace**

#### *Instructional quality*

Instructional quality has been researched in many studies. Characteristics of high-quality learning arrangements range from three basic dimensions (Dorfner et al., 2018; Praetorius et al., 2018), about ten characteristics (Meyer, 2003; Helmke, 2009; Hamre & Pianta, 2010; Pianta et al., 2008; Sandilos et al., 2014), up to catalogues like Hattie (2009). What is common to all lists seems to be the activation of the learner, the management of the learning process by the teacher and the support of the teacher (c. f. zone of proximal development, Vygotsky, 1978).

However, most of the instructional quality depends on the use of instructional offers. That is, while teachers base their instruction on quality dimensions and offer learning opportunities to the students, it is up to the student to make use of the offer. In an economic perspective one can reframe this within a supply and demand context. Too much offering will saturate the demand; and high demand without any offers will not result in any gain for anyone.

There is also a demand for evaluation from a teacher qualification perspective. Good quality instruction also depends on the teacher competence and pedagogical skills

(Kunter et al., 2013; Oser et al., 2009; Oser, 2013). This topic, again, has been of interest in vocational educational school research, but hardly in the workplace learning environment. While in regular school, prospective lower-secondary teachers study about 5'400 hours in a mix of pedagogy and subject matter (= 180 European Credit Transfer System, ECTS; 1 ECTS= 30 hours), teachers for upper-secondary school study 60 ECTS of pedagogy in addition to a subject matter Masters degree. In VET workplace education 10 ECTS are required to become a professional workplace instructor.

The gap in the amount of study hours may also reflect (but does not necessarily result in) a quality difference. Therefore, quality-oriented evaluations and reports from VET students may help identify potentials to improve workplace learning and leverage the motivation and learning success of VET students.

### *Job satisfaction*

The construct of job satisfaction can therefore be described in many facets and different dimensions. Not least because it is considered one of the most comprehensively researched areas of organisational psychology (Dorman et al., 2006). Some authors attempt to harmonise the various definitions of terms and similar constructs, see for example Gebert & Rosenstiel (2002) or Judge & Klinger (2008).

Job satisfaction depends on the relationship between motives, needs, demands, etc. on the one hand and the characteristics of the work situation on the other hand (Bruggemann et al., 1975). This means, that satisfaction is corrupted if the job characteristic is stable and an individual's demand changes, or the other way round. A continuous comparison between the situation and individual's desires is needed to identify dissonance and to clear the dissonance. In view of continuously existing needs, however, this can either be interpreted as a trait-like concept, because needs are met in a broad and general way. Job satisfaction can also be seen as a temporary state that requires continuous dissonance reduction.

The research question in this paper refers to asking VET students about how they retrospectively perceive their workplace learning. Therefore, in this context, I define job satisfaction in terms of Neuberger (1974, 1985), Otte (2007), and Vroom (1964) as a past-oriented, transient state that manifests itself in the satisfaction of individual needs and is measurable in terms of specific aspects (c.f. Jalagat, 2016). This definition is directly related to a) specific situational dimensions that need to be assessed for job satisfaction, and b) the methodological question of how to assess job satisfaction. For both issues, see the next paragraph on *Instrument development to assess job satisfaction*.

### **Instrument development to assess job satisfaction**

The value model of Schwartz (1992) served as a factor source (see  
The value model was adapted to a work context, since not all of the values listed are considered genuinely relevant for a VET or organizational context. For adaptation,

the statements of Rosenstiel (1983) and Semmer & Udris (2007) were used, which emphasise aspects of everyday workplace life: Interpersonal relationships, job security, work structuring, financial conditions, work climate, etc. The **Error! Not a valid bookmark self-reference.** shows the exact aspiration dimensions that were used for the construction of indicators on the right-hand side.

**Figure 3** left). The model includes nine value dimensions which also represent desires of individuals: stimulation, self-direction, universalism, benevolence, conformity/ tradition, security, power, achievement, and hedonism. Table 4 lists the definitions of the value dimensions.

**Table 4**  
Motivational values according to Schwartz

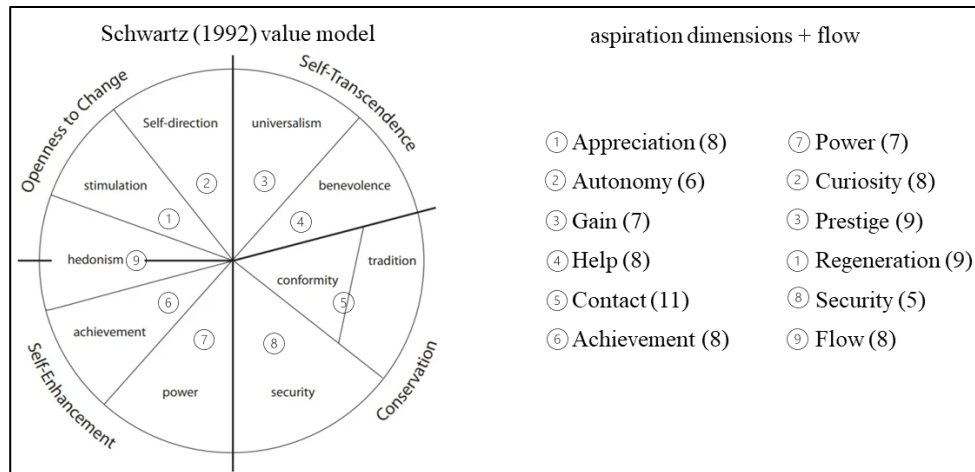
Values	Representations
Power	Social status and prestige, control/dominance over people (social power, authority, wealth, maintaining my public image)
Achievement	Personal success through demonstrating competence in social standards. (successful, capable, ambitious, influential)
Hedonism	Pleasure and sensual rewards for oneself. (pleasure, enjoying life)
Stimulation	Excitement, novelty and challenges in life. (daring, a varied life, an exciting life)
Self-determination	Independent thinking and acting, creative activity, exploring. (creativity, freedom, independent, curious, choosing one's own goals)
Universalism	Understanding, appreciation, tolerance, protection of the well-being of all people and nature. (tolerant, social justice, equality, a world full of beauty, unity with nature, protecting the environment)
Benevolence	Preserving and enhancing the well-being of people with whom one has frequent contact. (helpful, honest, forgiving, faithful, responsible)
Tradition	Respect for, attachment to and acceptance of customs and ideas that traditional cultures and religions have developed for their members. (pious, accepting my position in life, humble, respect for tradition, moderate)
Conformity	Restriction of actions and impulses that could offend or hurt others or violate social expectations and norms. (politeness, obedience, self-discipline)
Security	Security, harmony and stability of society, relationships and the self. (family security, national security, social order, cleanliness, not owing anyone anything)

Source: Schmidt et al. (2007), translated from the German version

The value model was adapted to a work context, since not all of the values listed are considered genuinely relevant for a VET or organizational context. For adaptation, the statements of Rosenstiel (1983) and Semmer & Udris (2007) were used, which

emphasise aspects of everyday workplace life: Interpersonal relationships, job security, work structuring, financial conditions, work climate, etc. The **Error! Not a valid bookmark self-reference.** shows the exact aspiration dimensions that were used for the construction of indicators on the right-hand side.



**Figure 3**  
Value model and assigned aspiration dimensions



Due to the close relationship between work motivation and job satisfaction (Scheffer & Kuhl, 2006; Rosenstiel, 2010), a questionnaire was configured based on the structure of Porter's Need Satisfaction Questionnaire (questionnaire in: Haire et al., 1966). In the original, statements are to be rated on three seven-point scales of as-is (present now), to-be (should be), and importance (how important). This format is guided by the idea that job satisfaction results from the difference of an existing state and a desired state, with this difference multiplicatively linked to an importance rating (Locke, 1969; Judge & Klinger, 2008).

**Figure 4**  
Example of the questionnaire in this study (translated from the German original)

Please provide details of your current workplace learning situation.

		Not at all  Fully applicable	Cannot say	Not important at all  Very important	Cannot say
[Ac]	The company sets high but achievable goals.	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>
[Au]	Others don't interfere in my work.	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>
[Ac]	I have a lot of challenging tasks to complete in the operational process.	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>
[Re]	There are enough breaks.	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>
[Ga]	The work is adequately paid.	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>	① ② ③ ④ ⑤ ⑥	<input type="checkbox"/>

The questionnaire in this study retains the assessment of the current situation, but it combines the assessment of desirability and importance into one category called “importance”. This step was taken because desires represent goals that are important

to a person (Rheinberg, 2002). Figure 4 shows an example of the adapted version of the questionnaire. An item's association with a value dimension is given in brackets, but was not shown in the version that was submitted to the students.

## **METHODS**

### **Data acquisition and data reduction**

In total, information was collected on nine aspiration factors, which were assessed twice – as a current condition and as how important they are. All factors are multi-indicator constructs rated on a 6-point Likert scale: Feedback from educators, prestige of the profession, achievement motivation, positive social relationships, job security, collegial esteem, affiliation with the company, group work, and general satisfaction; and flow experience. Altogether, 86 items + 8 flow items were deployed to the VET students. Flow, as a quality of learning experience, was operationalised as an additional target construct that was rated on 8 items each on a 6-point Likert scale.

An initial principal component analysis with varimax rotation on the situational aspect of the aspiration items resulted in nine factors (54 items) plus flow. All components were scaled and reliable with Cronbach alpha > .60. The factors are listed in Table 5.

The current situation minus the desirability result in an index in which zero is the top value, because zero represents no difference between condition and desirability.

### **Sample**

173 VET students in the industrial sector (car making) and 131 students in the service sector (insurance) participated in the survey. Out of three years of training, 41% were first year, 33% second year, and 24% third year. The service sector was female dominated (63%), the industry sector male dominated (94%).

## **RESULTS**

Results (see Table 5) show that in particular feedback from supervisors and workplace, achievement motivation support, and general satisfaction prerequisites (clear tasks, proper wage, low distress, acceptable workload) correlate with a flow-like experience during the learning in the VET workplace.

Also, feedback is associated with personal relationships, the affiliation to the company, and general satisfaction. Collegial esteem correlates strongly with relationships. General satisfaction is strongly associated with the support of achievement motivation.



**Table 5***Pearson correlations of the satisfaction indices*

Factors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Feedback <b>12</b>									
(2) Prestige <b>6</b>	.26**								
(3) Achievement <b>10</b>	.51**	.25**							
(4) Relationships <b>6</b>	.51**	.24**	.35**						
(5) Security <b>2</b>	.24**	.27**	.22**	.15**					
(6) Collegial esteem <b>2</b>	.28**	.17**	.19**	.48**	.22**				
(7) Affiliation <b>2</b>	.47**	.18**	.38**	.38**	.20**	.30**			
(8) Group work <b>2</b>	.20**	.06	.29**	.25**	.14*	.10	.24**		
(9) Genaral satisfaction <b>4</b>	.46**	.15*	.48**	.25**	.23**	.21**	.27**	.16**	
(10) Flow <b>8</b>	.41**	.08	.48**	.26**	.13*	.09	.27**	.24**	.34**

\*  $p < .05$ ; \*\*  $p < .01$ ; two-sided; bold numbers indicate the number of indicators in the construct

## DISCUSSION

The study related job satisfaction to learning motivation in a context of instructional quality in workplace VET learning. I investigated correlates of a positive work and learning experience in VET students' workplace. The support of achievement motivation and feedback are the most strongly associated factors with a flow-like experience. Yet, it seems that relationships, affiliation and group work are strong confounders.

Interestingly, prestige of the job, future job security and collegial esteem are hardly correlated with flow. This indicates that VET students get motivated by highly individual factors, not by (abstract) social factors or future expectations. This result can be used to optimize the learning in the VET workplace in terms of teaching quality, the pedagogy and how content and tasks are presented.

In a wider context, I see that quality aspects as perceived by the VET learners, can be used to describe good quality VET education. This can be relevant when it comes to recruitment of prospective students.

The assessment of work conditions and also the evaluation of demands of students can help to improve existing systems of VET education.

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## “HAPPINESS IS A VERB”

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### ABSTRACT

*Strengthening student well-being is conditional for the development of resilient (professional) individuals and successful completion of nursing studies. An exploratory problem and context analysis shows that insufficient study success negatively affects student well-being. Student well-being consists of seven elements. This practical study investigated how an intervention on one element, namely quality commitment, affects the well-being of first-year Albeda senior secondary vocational education nursing students with the aim of study success. The focus was on sustainable influence on well-being through conscious use of core qualities; maximising these with flow experiences and learning to remove obstacles to quality commitment during resilience and sports activities. The intervention called 'happiness is a verb', was developed based on literature on evidence-based exercises with core qualities within the design criteria of the ADDIE innovation model and in collaboration with development teams. A data-driven quasi-experimental study was used to measure the effect on student well-being with a pre- and post-measurement in an experimental group (n=74) and a control group (n=26) for seven weeks. Quantitatively, the General Happiness Scale (GHS) in this intervention study showed no significant effect of the intervention on student well-being. Through logbooks (n=74) and interviews with students (n=4) and teachers (n=2), experiential knowledge on well-being and the intervention was qualitatively described. Although this intervention study is limited in scope by coronagraphs, it can be plausibly shown that student well-being is supported by the intervention.*

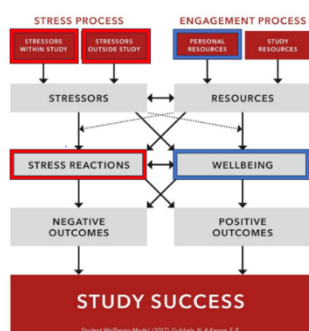
*Keywords: wellbeing, core qualities, sport, resilience, study success*

## INTRODUCTION

The importance of student well-being in education is highlighted as it serves as the foundation for mental health, academic performance, and a socially responsible life (Noble et al., 2008). Well-being, characterized by feeling good and functioning well, is influenced by heredity, circumstances, and personal choices (Huppert & Johnson, 2010; Sheldon & Lyubomirsky, 2006). Elevated levels of student well-being correlate with improved study results and enhance academic engagement and learning ability (Centre for Education Statistics and Evaluation, 2015; Phan et al., 2016).

The practical study focuses on Albeda Vocational Education nursing course due to issues with study success, resulting in study delays or dropouts, which pose social problems (Boogaard et al., 2019). The exploration of factors affecting well-being and study success reveals stress as a significant negative influencer (Verouden et al., 2010a, 2010b). Dutch higher education and university-students report 40-50% stress-related health complaints, with nursing students facing higher stress levels due to the dual demands of education and work in the health sector (Boer, 2017; Turner & Lander McCarthy, 2016).

The Albeda Vocational Education nursing course shows declining return figures, and an exploratory practice study reveals a variety of stressors impacting student well-being and success. To address this, the study opts to develop personal resources through core qualities instead of solely reducing stressors (Gubbels & Kappe, 2019).



*Figure 1 Balance in student wellbeing. Reprinted from Gubbels & Kappe, 2019.*

Core qualities, innate positive personal attributes, are highlighted as the natural ability to function optimally and are developable (Korthagen & Lagerwerf, 2011). Utilizing core qualities is supported by Well-being theory, Broaden-and-build theory, and Self-determination theory, leading to increased well-being by deploying personal resources (Seligman, 2011; Frederickson, 2004; Deci & Ryan, 2000).

Previous research demonstrates that awareness and use of core qualities enhance well-being across different age groups and interventions (Seligman, Park, & Peterson, 2005; Ruit, Korthagen, & Schoonenboom, 2019; Noble & McGrath, 2016;



Hughes & Spanner, 2019). The study introduces a quality commitment intervention named 'happiness is a verb,' combining blended learning with theory, exercises, logbooks, and tests, along with sports and resilience lessons. This approach aims to generate positive emotions and increase feelings of competence, autonomy, and belonging. The study anticipates that recognizing, using, and expanding core qualities will promote student well-being, fostering resilient individuals with study success.

## THEORETICAL FRAMEWORK

This section explores the theoretical underpinnings of promoting well-being, specifically focusing on the use of core qualities. Theoretical frameworks include Well-being theory, Broaden-and-build theory, and Self-determination theory.

### Well-being from Well-being Theory

Well-being, as defined by Huppert and Johnson (2010), encompasses feeling good and functioning well. The Well-being theory (Seligman, 2011) emphasizes five elements (**PERMA**): **P**ositive emotions, **E**ngagement, **R**elations, **M**eaning and purpose, and **A**ccomplishment. An extension by Noble and McGrath (2016) introduces **PROSPER**, adding **P**ositivity, **R**elationships, **O**utcomes, **S**trengths, **P**urpose, **E**ngagement, and **R**esilience. Optimal student well-being includes sustained positive mood, positive school relationships, resilience, self-optimization through core qualities, and satisfying learning experiences (Noble & McGrath, 2016).

Table 1 *Elements of well-being*

Element in English	Element in Dutch	Meaning of element
Positivity/Positive emotions	Positivity	Positive thinking (gratitude, optimistic thinking, observant) and Positive emotions (pleasure, satisfaction, security, pride).
Relationships	Relationships	Social values and skills to develop positive relationships at school (with students and teaching staff).
Outcomes/Accomplishment	Study Outcomes	Performance, grip, competencies, goal setting, thinking focused on growth.
Strengths	qualities	Recognise core qualities, capabilities, self-knowledge, self-respect, self-esteem, strengths.
Purpose/Meaning/purpose	Target	Pursuing meaningful purpose for yourself and others.
Engagement	Engagement	Experiencing flow in thinking, feeling, wanting and acting.
Resilience	Resilience	Self-confidence, emotional stability, coping skills, courage, vitality.

### Well-being from Broaden-and-build Theory with Positive Emotions

Fredrickson's Broaden-and-build theory (2004) links positive emotions to learning and well-being. Positive emotions broaden thinking patterns, fostering flexibility, creativity, and efficiency. They build sustainable physical, psychological, cognitive, and social resources. The theory highlights the role of positive emotions in resilience, where they serve both as initiators and outcomes of resilient coping (Frederickson, 2004). The intervention aims to nurture resilience and well-being by generating positive emotions through mental, social, emotional, and physical exercises.

### Well-being from Self-determination Theory with Flow

Flow, a state of maximal use of core qualities, is crucial for balanced personal development and natural learning. Csikszentmihalyi's (2014) concept of flow aligns

thought, feeling, willingness, and action. Self-determination theory emphasizes fulfilling basic psychological needs - competence, relationship, and autonomy. Flow contributes to meeting these needs and intrinsically motivated goals, positively impacting well-being (Deci & Ryan, 2000). The intervention stimulates flow through physical exercises, supporting the fulfillment of basic psychological needs.

### **Promoting Well-being through Deployment of Core Qualities**

Core qualities, innate and developable, represent positive character strengths. They are associated with better study outcomes, goal achievement, and stress reduction (Wood et al, 2011). Engaging with core qualities during the intervention is expected to lead to increased well-being, self-confidence, and vitality. Qualities engagement is crucial for balanced personal development, with heart-focused qualities having a greater impact on well-being. The study aims to investigate the use of core qualities in promoting well-being within a multicultural vocational nursing course in the South of Rotterdam.

The intervention focuses solely on core qualities concerning well-being due to their solid foundation in Well-being theory. The practical study will explore the impact of core qualities on well-being within the specified research area, considering the multifaceted elements of the Well-being theory.

## **METHODS**

### **Research Questions and Design**

The research aimed to explore the impact of an intervention with quality commitment on the well-being of first-year Albeda nursing students and its correlation with study success. Four sub-questions were formulated, focusing on factors influencing study success, design criteria for intervention development, the effect of the intervention on well-being, and experiential knowledge among teachers and students.

A mixed-methods approach was employed from October 2019 to December 2020, involving file research, interviews, questionnaires, logbooks, and an intervention. The study utilized a quasi-experimental design with pre- and post-measurements, incorporating an intervention group and a control group. The measurement of intervention results could take place for well-being, but not for academic success, as this requires a longitudinal study design (Bakker et al., 2018). Table 2 provides the data collection, respondents, and data analysis for each sub-question.

### **Intervention**

The intervention was based on principles of positive psychology. The focus was on a sustainable influence on well-being through conscious use of qualities. By combining with resilience and sport, mental and physical well-being are jointly supported (Luteijn, 2020). With *flow experiences* during sports, qualities commitment was maximized and barriers minimized. The intervention was

developed according to the design criteria of the ADDIE innovation model (Branch, 2009) in collaboration with two development teams led by the *teacher leader*. A self-composed *blended learning* with *evidence-based* exercises on core qualities was chosen as the instrument:

- Materials by Bannink (2018) and Lyubomirsky (2009) were used for well-being and core qualities based on *well-being theory* by Seligman.
- Materials by Korthagen and Nuijten (2016) and Korthagen and Lagerwerf (2011) were used for *flow* and core reflection based on *flow theory* by Csikszentmihalyi.
- Exercises by Vries, Joosen and Hoeffgen (2017) were used to remove obstacles in *flow* based on imagination by Insoo Kim Berg.
- Exercises by Visser (2020) and Hiemstra (2018) were used for core qualities in relation to study success and life course based on positive psychology.

*Table 2 Research design with data collection, respondents and data analysis for each sub-question*

Sub-questions	Data collection	Respondents	Data analysis technique
<b>Subquestion 1:</b> What impeding and promoting factors influence study success among Albeda mbo nursing students?	<b>File research</b> on study success: All calibration judgements from July 2019 ( $N=581$ ) All student changes from 2018-2019 ( $N=277$ ) Sample of exit interviews ( $n=38$ )		Text: summarising on relevant items, open and axial coding. Numeric: descriptive statistics
	<b>Digital multiple-choice questionnaire</b> on study success. Self-designed based on validated study success model from Tinto.	Students years 1 to 4 ( $n=104$ )	Descriptive statistics
	<b>Semi-structured focus group interviews</b> on quality commitment to study success based on Tinto's validated study success model	Students with study delays ( $n=5$ )	Word transcription. Open and axial encoding
		Students without study delays ( $n=7$ )	Word transcription. Open and axial encoding
		Study coaches ( $n=5$ )	Word transcription. Open and axial encoding
<b>Sub-question 2:</b> What design criteria are needed to develop and implement an intervention with qualities deployment?	<b>Literature review</b> of <i>evidence-based</i> exercises with core qualities with snowball search strategy		Narrative thematic analysis
	<b>Intervention design meetings</b> with 2 development teams	Teachers ( $n=5$ ) and Lecturers ( $n=3$ )	Summarise on relevant items
	<b>Open-ended questionnaire</b> on dilemmas from the ADDIE innovation model.	Teachers ( $n=7$ )	Open and axial coding
<b>Sub-question 3:</b> What is the effect of the intervention on well-being of first-year Albeda nursing students?	Well-being <b>questionnaire</b> with validated <i>General Happiness Scale</i> (GHS)	Students Year 1 experimental group ( $n=74$ )	Cronbach's alpha, ANOVA, unpaired t-test with SPSS
		Students Year 1 control group ( $n=26$ )	Cronbach's alpha, ANOVA, unpaired t-test with SPSS
<b>Sub-question 4:</b> What is the experiential knowledge about well-being and intervention among teachers and first-year Albeda nursing students to promote study success?	<b>Pre-structured digital log</b> on student well-being and study success.	Students Year 1 experimental group ( $n=74$ )	Text: summarising on relevant items, open and axial coding Numeric: descriptive statistics.
	<b>Semi-structured individual interviews</b> on experiential knowledge of wellbeing and the intervention.	Students from experimental group ( $n=4$ )	Word transcription. Open and axial coding with Atlas-Ti, Cohen's Kappa with SPSS.
		Teachers of intervention ( $n=2$ )	Word transcription. Open and axial coding with Atlas-Ti, Cohen's Kappa with SPSS.
	<b>Log on intervention implementation</b>	Teachers of intervention ( $n=2$ )	Summarise on relevant items

The intervention pilot coincided with the first *lockdown* of the corona pandemic. This limited testing for feasibility, satisfaction and outcome. The intervention was further developed into a flexible [website version](#), in which lessons, tests, videos and logbooks were offered digitally. With this *blended learning, face-to-face* teaching interacts with ICT, enabling hybrid and differentiated learning for optimal growth in wellbeing (Oliver & Trigwell, 2005). The theoretical framework justified the operation of the intervention and this served as a manual.

Finally, the intervention was examined for efficacy in well-being using the validated *General Happiness Scale* (GHS). Due to corona measures, 9 instead of 11 intervention lessons were conducted for 7 instead of 10 weeks. Experiential knowledge of well-being and the intervention was studied, with self-reports in student and teacher logbooks and with individual interviews (Thalheimer, 2020).

## RESULTS

## Sub-question 1: Problem and Context Analysis

The study conducted problem and context analysis using various data collection methods: The file research encompassed calibration forms ( $n=581$ ), mutation forms ( $n=277$ ), and exit forms ( $n=38$ ), examining factors influencing study success. The digital questionnaire ( $n=104$ ), designed based on existing questionnaires, gathered student perceptions, while semi-structured focus group interviews ( $n=17$ ) explored qualities deployment for study success. Data analysis employed Tinto's (1975) validated study success model, with numerical data processed using Excel for descriptive statistics.

*Table 3 Characteristics of respondents.*

Respondents Sub-question 1	Number $n^*$	age		Gender	
		$M^{**}$	$SD^{***}$	Male	Female
Student multiple-choice questionnaire	104	23	8.97	9	95
Students with study delays	5	20	1.19	1	4
Students with study success	7	19	1.65	0	7
Study coaches	5	41	9.68	2	3

*\*n=number, \*\*M=mean, \*\*\*SD=standard deviation*

File surveys highlighted impeding factors for study success, revealing academic integration problems (too high level and insufficient study performance) and intention problems (wrong career image or choice) as primary reasons for study discontinuation. Followed by negative student characteristics (physical, mental or social problems) and social integration problems (absenteeism).

Semi-structured focus group interviews revealed that commitment to study success varied among students. Those without study delays ( $n=7$ ) emphasized qualities related to social integration, while study coaches ( $n=5$ ) focused on academic integration. Students with study delays ( $n=5$ ) experienced negative characteristics causing social and academic integration problems. Support for student well-being emerged as a key stimulating factor for study success. The findings contribute to a comprehensive understanding of factors influencing study success and can inform interventions for student support.

The digital questionnaire, with 104 respondents, presented a mix of encouraging and hindering factors for study success. Students rated themselves high on intentions, social, and academic integration, but significant numbers faced problems in categories such as stress, overload, dissatisfaction, setbacks, financial, socio-emotional, and physical issues. See table 4.

*Table 4 Student perceptions of study success ( $n=104$ ) scored on a five-point Likert scale (1=true not at all-5=true at all). Categories according to study success model of Tinto (1975)*

Category		M*	SD**
Intentions	Nursing is really my <b>first choice</b> (S <sup>1</sup> ).	4.28	0.97
	I <b>expect</b> a positive ijk without study delay (S <sup>1</sup> ).	4.04	0.92
	I have a clear <b>career picture</b> of the nursing profession (B <sup>2</sup> ).	4.31	0.87
	I <b>expect to complete</b> my practical period positively (B <sup>2</sup> ).	4.24	0.94
	My intention is to complete this course <b>with a diploma</b> (P <sup>3</sup> ).	4.87	0.46
Social inclusion	I have a clear <b>example</b> in my practice for the nursing profession (B <sup>2</sup> ).	3.98	0.97
	I am <b>not absent</b> without a valid reason (S <sup>1</sup> ).	4.51	0.90
	I get <b>excited</b> about my practice (B <sup>2</sup> ).	3.70	1.21
	I feel <b>socially accepted</b> in class (S <sup>1</sup> ).	4.41	0.85
	I feel <b>socially accepted</b> in my practice (P <sup>3</sup> ).	4.12	0.95
	I <b>actively participate</b> in teaching activities (S <sup>1</sup> ).	4.18	0.79
	I receive <b>personal counselling</b> in my practice (B <sup>2</sup> ).	3.59	1.19
	I experience an <b>engaged relationship</b> with my LOB teacher (S <sup>1</sup> ).	3.83	1.11
Academic integration	I experience that my education <b>helps me become who I want to be</b> (P <sup>3</sup> ).	3.61	1.01
	I experience <b>choice</b> in learning activities (S <sup>1</sup> ).	3.15	0.87
	It is <b>clear</b> to me what I need to do for my education (S <sup>1</sup> ).	3.59	0.98
	It is <b>clear</b> to me what I need to do for my practice (B <sup>2</sup> ).	3.84	0.90
	I can <b>look back on</b> my school work <b>learning-wise</b> (S <sup>1</sup> ).	3.85	0.82
	I can <b>look back on</b> my actions <b>in a learning way</b> (B <sup>2</sup> ).	4.06	0.77
Student characteristics	The <b>level of training</b> matches what I am capable of (S <sup>1</sup> ).	4.10	0.77
	The <b>level of practice</b> matches what I am capable of (B <sup>2</sup> ).	4.02	0.88
	I experience <b>study stress</b> (S <sup>1</sup> ).	3.88	1.12
	I experience <b>stress</b> in my practice (B <sup>2</sup> ).	3.39	1.16
	I experience a <b>supportive</b> home situation (P <sup>3</sup> ).	4.06	1.15
	I can <b>balance</b> workload between school, practice and personal life (P <sup>3</sup> ).	3.13	1.12
	I can adequately <b>deal with</b> setbacks of my education (P <sup>3</sup> ).	3.60	0.98
	I know how to <b>relax</b> after an intense day (P <sup>3</sup> ).	3.56	1.21
	I feel <b>grateful/satisfied</b> this period (P <sup>3</sup> ).	3.33	1.18
	I am experiencing <b>financial</b> difficulties (P <sup>3</sup> ).	1.92	1.34
	I experience <b>social emotional</b> problems (P <sup>3</sup> ).	2.61	1.41
	I experience <b>physical</b> problems (P <sup>3</sup> ).	2.66	1.43

\*M=mean, \*\*SD=standard deviation

Question on: S<sup>1</sup>=school, B<sup>2</sup>=professional practice, P<sup>3</sup>=personal<sup>3</sup>

Although file figures and student perceptions label various factors differently as either promoting or hindering study success, all these factors have an impact on student well-being. Quality commitment and well-being support were mentioned as stimulating factors for study success. It was chosen to continue the practical study with the last two, because they can be influenced by school and the student.

## Sub-question 2: Intervention Design and Implementation

The intervention design, aimed at enhancing student well-being and commitment, employed a meticulous data collection process involving a literature review, an open-ended questionnaire, and design meetings of two development teams (n=5 and n=3).

Table 5 *Characteristics of respondents*

Respondents	Number	age		Gender	
Sub-question 2	n*	M**	SD***	Male	Female
Teachers' open questionnaire	7	49	11.57	3	4
Teachers development team 1	5	51	12.10	2	3
Teachers development team 2	3	48	12.01	1	2

\*n=number, \*\*M=mean, \*\*\*SD=standard deviation

The literature review identified evidence-based exercises, employing a snowball search method. The ADDIE innovation model provided a systematic framework for developing a student-driven digital learning intervention. The development teams identified key design and implementation criteria:

1. Combine theory and practice by merging physical and mental well-being.
2. Create flexible *blended learning* for optimal student-centered learning experiences and mental safety.
3. Adopt a broad assessment methodology to measure different levels of learning and enable customization with data-driven output.
4. Comply with current corona rules for physical security.



The intervention was implemented by resilience teachers based on the established criteria, utilizing theory, tests, and logbooks on a dedicated website. Students engaged in resilience and theory lessons at a combined sports and learning site, completing assessments related to well-being, study success, and quality commitment. The intervention structure, detailed in Table 6, followed the methodology of Thalheimer (2020), with adaptations due to COVID-19 measures.

*Table 6 Learning evaluation methodology of intervention with output barriers.*

Learning level	Instruments	Export limitations intervention
Presence (1)	(physically) present in theory and sports/resilience classes	Quarantine absence of students and teacher.
Activity (2)	Active engagement during sports/resilience lessons and in theory and collaborative assignments.	Hybrid and digital lessons limit activities
Student perceptions (3)	Retrieve prior knowledge and perceptions about student wellbeing and study progress during lessons and inquire in logbooks and question in interviews.	-
Knowledge (4)	Evaluation intervention goals consists of statements a 3-point scale (not at all correct, partially correct, completely correct). Experiential knowledge of intervention questioning in interviews.	Evaluation intervention targets missing due to lockdown.
Decision-making: know what to do (5)	Recognising and using core qualities for your studies with VIA test based on elements of well-being from Seligman (2011); inquire in logbooks and question at interviews.	-
Decision-making in task: can do what you have learned (6)	Experience knowledge deployment core qualities and influencing well-being with group evaluation 'over the line' based on the <i>Oxford Happiness Inventory</i> (Hills & Argyle, 2002); questioning in logbooks and questioning in interviews.	Group evaluation missing due to lockdown.
Transfer: can apply what has been learnt in new situations (7)	Apply core qualities in new situations in sports/resilience and learn to remove barriers; inquire in logbooks and question in interviews.	Learning level 7 is missing due to lockdown.
Impact transfer: perceived effect of learned (8)	Measuring student well-being with <i>General Happiness Scale</i> (GHS) (Lyubomirsky & Lepper, 1999). Inquire experiential knowledge student well-being in logbooks and question in interviews.	GHS 14 students from experimental group and 8 from control group absent due to lockdown.

Despite challenges, the 'happiness is a verb' intervention was broadly delivered according to the agreed design and implementation criteria.

### Sub-question 3: Effect Measurement of Intervention

The impact of the intervention was assessed using the validated General Happiness Scale (GHS) with pre- and post-intervention measurements in both the experimental ( $n=74$ ) and control groups ( $n=26$ ).

*Table 7 Characteristics of respondents*

Respondents Sub-question 3	Number $n^*$	age $M^{**}$ SD $^{***}$	Gender Male Female
Intervention group	74	18 2.61	7 67
control group	26	21 1.96	5 21

\*n=number, \*\*M=mean, \*\*\*SD=standard deviation

Data analysis utilized SPSS, incorporating the unpaired t-test and ANOVA. The mean well-being scores at t1 were statistically equivalent between the intervention ( $M=5.07$ ,  $SD \pm 1.78$ ) and control ( $M=5.12$ ,  $SD \pm 1.03$ ) groups. While both groups experienced a decrease in mean well-being at t2, the control group exhibited a wider spread. However, the change in mean well-being between groups was not significant ( $p=.35$ ). Consequently, the study found no significant effect of the intervention on mean well-being with GHS, as detailed in Table 8.

*Table 8 Student well-being with GHS for both conditions at t1, t2 and difference score with t-test and ANOVA*

Condition:	Intervention group			Control group			P****
	n*	M**	SD***	N*	M**	SD***	
Well-being t1	74	5.07	.78	26	5.12	1.03	.81
Well-being t2	60	4.97	.95	18	4.78	1.20	.48
Difference well-being t2 - t1	60	-0.11	.61	18	-0.28	0.84	.35

\*n=number, \*\*M=mean, \*\*\*SD=standard deviation, \*\*\*\*p=significance <.05

#### Sub-question 4: Product and Process Evaluation of Intervention

The evaluation of a well-being intervention involved comprehensive data collection through logbooks and interviews. Interview data analysis included open-ended and axially coded transcription in Atlas-Ti, with reliability ensured through peer debriefing, member check, and a second coder. Teacher logs and student digital logs captured experiential knowledge about well-being and the intervention, focusing on seven elements: Positivity, Relationships, Study Outcomes, Qualities, Purpose and Meaning, Engagement, and Resilience.

Table 9 Characteristics of respondents

Respondents Sub-question 4	Number n*	age M** SD***	Gender		
			Male	Female	
student logbooks	48-71	18	2.61	7	67
teacher's log	2	54	9.19	1	1
teacher interview	2	54	9.19	1	1
student interview	4	17	1.53	1	3

\*n=number, \*\*M=mean, \*\*\*SD=standard deviation

\*n=number, \*\*M=mean, \*\*\*SD=standard deviation

The student logbooks ( $n = 48-71$ ) delved into specific well-being elements through structured questions. The majority of students recognized the influence of positive emotions and relationships on well-being. Growth in social skills and study success, coupled with increased self-knowledge through qualities identification, was observed. Students identified the importance of flow and resilience in managing stress and achieving study success. The logs reflected a broader perspective on life, work, and education, indicating the intervention's potential for holistic growth.

Table 10 code tree student logs 1 to 9 ( $n=48-71$ ) on experiential knowledge well-being.

logbook number	1	2	4	5	3	6	8	7	9
	n=71	n=61	n=65	n=48	n=24 digital n=66 paper	n=19 digital n=62 paper	n=57	n=56	n=61
Element wellbeing: *									
Positivity (179)	88	19	-	-	-	36	17	-	19
Relationship development (216)	87	-	-	-	22	17	-	27	63
Study outcomes (325)	-	104	-	-	-	-	-	20	201
Qualities (503)	6	-	118	92	70	72	-	-	151
Purpose/ meaning (203)	13	30	-	-	-	-	-	-	160
Engagement (344)	150	-	-	-	-	-	102	-	92
Resilience (179)	61	11	-	-	-	-	-	38	69

\*Number describes frequency

Teacher logs ( $n=2$ ) provided insights into intervention implementation, identifying both challenges and successes. Students appreciated the intervention's impact on well-being, recognizing its role in addressing issues like discrimination, bullying, and study problems. Challenges included the enforcement of COVID-19 measures and digital interference, while exercise assignments were deemed tough yet beneficial for learning efficiency. The logs reinforced the importance of self-reflection in navigating the intervention's challenges.

Individual interviews with teachers ( $n=2$ ) and students ( $n=4$ ) revealed alignment in their views, emphasizing the positive impact of the intervention on various well-being elements. Experiential knowledge was categorized according to the Well-being theory, providing insights into the role of qualities commitment in fostering well-being. The interviews showcased experiential knowledge related to well-being elements, such as positivity, relationships, study outcomes, qualities, purpose and meaning, commitment, and resilience. Both students and teachers acknowledged the importance of positive emotions, relationships, and study success for overall well-being. The intervention's impact on social skills, qualities deployment, and motivation for study success was evident. The concept of flow, engagement, and resilience also emerged, highlighting the significance of these elements in the well-being framework.

*Table 11 Code tree and interview guide from students ( $n=4$ ) and teachers ( $n=2$ ) on experiential knowledge of student well-being and the intervention.*

Main category	Subcategory	Code*	Interview guide
Experience knowledge well-being	1 Positivity	1 thinking+ (14)	1. Overall, how satisfied are you with the training? Why?
		2 thinking- (7)	
	2 Relationships	3 emotion+ (87)	2. How useful do you think training for students was/is for your studies? Why?
		4 emotion- (13)	
		5 Guidance+ (14)	
		6 Guidance- (6)	
		7 Physically present + (11)	
		8 Physically present- (10)	
		9 Recognition+ (5)	
		10 Relationship development+ (47)	
		11 Relationship development (5)	
		12 Respect+ (8)	
	3 Study outcome	13 Cooperation+ (20)	3. What did you think was the most important thing about this training/ most important thing you took away? Why?
		14 Cooperation (2)	
		15 Soc. skills+ (20)	
		16 Autonomy+ (7)	
		17 Vocational training+ (11)	
	4 Quality	18 Vocational training (3)	4. Which lesson components did you find most relevant. Why?
		19 Competence+ (9)	
		20 Challenge+ (28)	
		21 Qualities+ (14)	
		22 Qualities- (2)	
	5 Purpose and meaning	23 Self-knowledge+ (30)	- What is happiness (instruction). I understand that my happiness can be partially influenced.
		24 Self-esteem+ (11)	
		25 Professional image+ (9)	
		26 Study choice+ (5)	
	6 Engagement	27 Study choice (1)	- Reflection on study success (walk of privilege). I am aware of the influence of my environment on my study progress.
		28 Meaningful purpose+ (5)	
		29 Meaningful purpose- (2)	
		30 flow creative+ (12)	
	7 Resilience	31 flow sporty+ (18)	- Reflection on life (historical line). I can reflect on life course and deployed qualities.
		32 flow sports (3)	
		33 coping skill+ (32)	
		34 coping skill- (2)	
		35 problem behavior (13)	
		36 Home situation+ (7)	
		37 Home situation- (5)	
Experience knowledge intervention	8 Practical implementation	38 Vitality+ (10)	- Discovering qualities (test). I recognize my qualities.
		39 Vitality- (4)	
		40 Learning resource+ (18)	
		41 Learning tool- (2)	
		42 Organization and communication+ (8)	
		43 Organization and communication- (11)	
		44 Trainers+ (9)	
	9 Vision/opinion	45 Training+ (20)	- Discussing qualities (word cloud). I name qualities in another person.
		46 Training - (1)	
		47 Diversity+ (4)	
		48 Diversity- (8)	- What is flow? (instruction). I recognize flow in myself.
		49 Teacher team+ (9)	
		50 Personal education+ (32)	
		51 Well-being+ (34)	- Core reflection (Personal profile). I describe activities that permanently increase my happiness.
		52 Well-being- (5)	

\*number at code describes frequency

In summary, the evaluation demonstrated that the well-being intervention, centred around qualities commitment, was intricately linked to various elements of student well-being. Experiential knowledge gathered through interviews and logs highlighted the positive impact on positivity, relationships, study outcomes, qualities, purpose and meaning, engagement, and resilience. The findings underscore

the holistic nature of the intervention, contributing to a deeper understanding of its effects on student well-being.

## CONCLUSION AND DISCUSSION

### Conclusions

This intervention study aimed to investigate the influence of qualities on the well-being and study success of first-year Albeda nursing students. The literature review supports the notion that recognizing, using, and expanding core qualities contributes to long-term student well-being and better study results. The intervention, named 'happiness is a verb,' focused on quality commitment and was implemented according to design and implementation criteria. Although no statistically significant effect on student well-being was observed, qualitative outcomes revealed the value of the intervention. Experiential knowledge gained from the intervention was associated with education, work, and life.

Sub-question 1: Impeding and promoting factors for study success among Albeda nursing students

Impeding factors for study success included academic integration problems, intention problems, negative student characteristics, and social integration problems. Core qualities, linked to social and academic integration, were found to be conducive to study success. All seven elements of student well-being were deemed necessary for study success.

Sub-question 2: Design criteria for developing and implementing an intervention with qualities deployment

The intervention, focusing on quality engagement, was based on evidence-based exercises from positive psychology. The 'happiness is a verb' intervention was implemented according to design criteria, using blended learning for flexibility. Evaluation methodology ensured data-driven insights, and the intervention met corona guidelines.

Sub-question 3: Effect of the intervention on well-being

No significant effect on student well-being was observed, possibly due to a high initial well-being score, the nature of well-being growth, and the shortened, less intensive intervention because of a second lockdown with hybrid teaching.

Sub-question 4: Experiential knowledge on well-being and intervention

Experiential knowledge from teachers and students indicated that quality commitment was positively associated with all elements of student well-being. Specific growth was found for several elements of student well-being: school relationship (cooperation), social skills (caring), study skills (disciplined), coping skills (reflection on qualities deployment) and concretization of purpose and meaning (motivated). Students grow qualities through habitual commitment and the qualities test increases their self-knowledge in this. They are positive about the intervention, had fun and request a follow-up. It can be concluded that students

gained insight into influenceable and sustainable elements of well-being and apply this in education, work and life.

## **Discussion and Recommendations**

The practice study under discussion utilized a mixed-methods design, enhancing the validity and reliability of data collection and analysis. However, certain factors, particularly those arising from the pandemic, compromised the study's overall reliability and validity

The intervention's collaboration with resilience proved crucial, yet pandemic-related challenges, such as quarantine measures and hybrid education, disrupted its implementation. Lockdown constraints led to incomplete execution, impacting staffing, spaces, and exercises. To enhance the study's credibility, it is recommended that the intervention be repeated under more normal conditions.

Methodological validity was affected by the use of self-composed, non-validated questionnaires in sub questions 1 and 2. While the General Happiness Scale was validated, sub-question 3's empirical analytical design did not align with the research's critical and action-oriented nature. Future research could benefit from a less effect-oriented design for sub-question 3, focusing on educational development in addition to effect measurement.

Despite a low number of interview participants, their representation of the target group ensured ecological validity. Increasing external validity in follow-up research is suggested by including more participants and employing random selection in interviews.

The intervention shed light on participants' experiences with student well-being but lacked a test phase to establish the initial situation adequately. A recommendation for follow-up research involves mapping the initial situation more precisely using a questionnaire containing well-being subscales.

While the impact of the intervention on student well-being was explored, its effect on study success was not established within the short intervention period. Longitudinal follow-up research is advised to understand the relationship between student well-being and study success.

The study overlooked teacher well-being, prompting a need for follow-up research on whether the intervention could support teachers. Expanding the intervention to address topics such as diversity, discrimination, and bullying is recommended.

Given the pandemic's relevance, the intervention's continuation with smaller student groups and its integration into the new secondary school nursing curriculum are encouraged. A school-wide integrated approach to student well-being is emphasized for a more significant impact.

The study concluded that the intervention created a safe space for vulnerable topics. Recommendations include extending the intervention to cover topics like diversity

and bullying and training more teachers on resilience and coaching student well-being.

Finally, the intervention's relevance was underscored by its follow-up initiatives, including empowerment training, lectures, and integration into the school curriculum. A whole-school positive approach, characterized by a positive ethos, organization, communication, and pedagogy, is recommended for sustained promotion of well-being for both students and teachers.

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# **“BUT OF COURSE I’M GOING TO LOOK HAPPY” OR “HE NEEDED TO KNOW I WAS ANGRY”? COMPARING USE OF EMOTIONAL LABOUR IN TEAMWORK IN ENGINEERING AND HOSPITALITY STUDENTS.**

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## **ABSTRACT**

*Being able to work effectively in a team is a vital professional skill but how do students in different disciplines, engineering and hospitality, display their emotions when working together? We investigated their self-reported use of emotional labour strategies, exploring the circumstances (when) and reasons (why) for using or not using them. We also examined the limitations and effects of emotional labour on their well-being.*

*A mixed-method approach was adopted using participants from two Swiss higher education institutions. Stage 1, a quantitative survey, determined that hospitality students used emotional dissonance strategies less than engineering students and that there was no statistically significant difference on the use of deep acting strategies between the two groups. Stage 2 involved using interpretative phenomenological analysis (IPA) on interview data from 14 students equally distributed across the institutions showing that both groups readily displayed their felt emotions in educational teamwork but used surface acting when in leadership roles, or “for the good of the team”. Undertaking surface acting was reported as more difficult when emotionally or physically drained and hospitality students were more reflective of their interactions. There is an indication that women dialled down their shown emotions in situations of sexism and not feeling respected. Deep acting strategies were dismissed by engineers but enacted by hospitality students through empathising with clients and anticipating their needs. Recommendations include teaching deep acting strategies and providing meaningful team projects enabling students, especially in engineering institutions, to learn how to interact effectively and healthily with others.*

## REVIEW OF THE LITERATURE

Emotion management is examined in this project through the lens of emotional labour. We adopted Hochschild's (1983) well known factors of *surface acting*: faking the emotion one feels is appropriate and *deep acting*: inducing it. Following Diefendorff et al. (2005), we added the expression of *naturally felt emotion* to form our three-part model, understanding emotional labour to be "the management of feeling to create a publicly observable facial and bodily display" (Hochschild, 1983, p. 7). Hochschild found that surface acting leads to emotive dissonance which could lead, according to Ashforth and Humphrey (1993) to poor self-esteem, depression, cynicism and alienation from work.

The level of emotional labour and the choice of emotional labour strategies (i.e., surface, deep or naturally felt) can vary depending on the field of study and the nature of the job, whether it involves teaching or crew responsibilities (Humphrey, 2023; Wang et al., 2021). These variations may have diverse impacts on individuals. A meta-analysis of 175 studies revealed that, for example, emotional labour can have both positive and negative effects, contingent on the specific emotional labour strategy employed-whether it is surface-acting or deep-acting (Humphrey, 2023). In other words, various emotional labour strategies yield distinct effects on individuals' mental health, burnout, and performance.

On the other hand, as disclosed in the quantitative stage of our research, previously reported (Kotluk et al., 2023), which included both hospitality and engineering students, we found that engineering students, in particular, exhibited statistically significantly higher emotive dissonance within their teams compared to hospitality students. This was primarily attributed to their preference for the surface acting strategy within their teams, as opposed to hospitality students. It is worth noting that while emotional labour in the hospitality and tourism field has been extensively examined (as seen in Lee & Madera's 2019 review), there has been comparatively less exploration in the engineering domain (refer to Houben & Wüstner, 2014; Lönngren et al., 2023; Shan, 2012). Thus, there is a need to shed light on why and when students in hospitality and engineering education prefer to use different emotional labour strategies in their teams and what impacts these strategies have on students.

In this study, we compared self-reported usage of displaying naturally felt emotion, doing surface acting and doing deep acting between engineering and hospitality students to further our understanding of their use of these strategies when working in teams. The research questions we sought to answer in this study were as follows:

**RQ 1:** Why do engineering and hospitality students use different emotional labour strategies in teamwork?

**RQ 2:** When do engineering and hospitality students use different emotional labour strategies in teamwork?

**RQ 3:** What limits engineering and hospitality students' use of different emotional labour strategies in teamwork?

**RQ 4:** What are the effects of using different emotional labour strategies in teamwork on engineering and hospitality students?

## METHODOLOGY

The mixed methods study followed a sequential explanatory design (Crearer, 2018) with a QUAN → QUAL [using Morse's (2003)] notation indicating equal weight given to both stages shown in order) approach, with an initial quantitative stage which subsequently informed the qualitative part. Data were gathered in late 2022-early 2023 for stage 1 and late 2023 for stage 2. The data from this stage has already been reported in Kotluk et al. (2023), but it is briefly presented here for comparison purposes. Therefore, in this paper, the main focus will be on Stage 2 results.

### **Stage 1: The quantitative part of the research**

In this stage, 90 engineering students from a public Swiss science and technical institution and 174 hospitality students ( $n=264$ ) from an international higher education institution in Switzerland specialising in hospitality management completed an electronically administered questionnaire in 2022.

### **Stage 2: The qualitative part of the research**

In Stage 2, 14 students (seven engineering students and seven hospitality students) from the same institutions as in Stage 1 were interviewed and the data analysed using Interpretative Phenomenological Analysis (IPA) for this phase. Through their professional and social networks, all of the researchers know some of the participants but were not teaching any of them at the time of the data collection. The first author conducted all of the interviews over Microsoft Teams with a view to consistency of the interview experience. All participants chose pseudonyms.

The engineers worked towards a very particular project involving many small teams to conceive, build and race an electrically powered car - predominantly in their own time but under the auspices of the institution while the hospitality students all had academic experience of teamwork and were all either final semester or recently graduated students who all had experience of working in the hospitality industry either in internships and / or as professional. Such small, homogeneous samples are typical in IPA work (Smith & Osborn, 2003). Following the recommendations from the pilot, who fulfilled the requirements of the purposeful sampling, the introductory guidance to the interview was modified with the protocol remaining unchanged. As a result, the data from this individual were included in the study.

The individual interviews were predominantly in English for approximately one hour. The video recordings aided the second researcher clean the transcripts which were returned to the participants for verification. Two additional comments from the participants were added to the transcripts at this stage. The transcripts were coded using MAXQDA while experiential statements were made for each participant providing a basis for the subsequent cross-case analysis. The emergent themes from this step (e.g., productivity, team cohesion) were then grouped into super-themes (intrinsic and extrinsic motivation, for example) before the coded data were returned to for the comparison between disciplines. The analysis was data led with an acknowledgement of the role of researcher in the IPA double hermeneutic of analyst making sense of "how participants are making sense of their personal and social

world” (Smith & Osborn, 2003, p. 53). Table 1 provides a list of participants with demographic details.

Table 6 List of participants with demographic details

	<b>Chosen pseudonym</b>	<b>Chosen gender</b>	<b>Academic / professional situation</b>	<b>Age</b>	<b>Nationality</b>
<b>Engineering students</b>	Alex	male	Last semester masters - internship	25	Swiss
	Alice	female	Last semester masters - internship	23	French
	Arnaud	male	Last semester masters - internship	24	French
	Ernest	male	Last semester masters - internship	25	Swiss / British
	John	male	Last semester masters - internship	23	Swiss
	Paul	male	Last semester bachelors - internship	22	French
	Robert	male	First semester masters	23	Swiss
<b>Hospitality students</b>	Ann	female	4 <sup>th</sup> month of post-bachelor MIT training	22	Vietnamese
	Evan	male	3 months after masters graduation	28	Indian
	Jonathan	male	Last semester of masters	25	Portuguese
	Lili	female	Last semester post-graduate internship	28	Indonesian
	Marie	female	Last semester masters internship	31	Indian
	Percy	male	7 months after bachelors graduation	22	American
	Steven	male	3 months after bachelors graduation	28	British

In Stage 1, the quantitative part of the research, Likert scale responses from the questionnaires for expressing naturally felt emotions were reversed and combined with surface acting to produce the concept of “emotional dissonance”. In Stage 2, for ease of comprehension with the participants, each situation was numbered as shown in Table 2.

Table 7 Conception of emotional labour in the different parts of the research project

<b>Emotional labour strategies</b> (Diefendorff et al., 2005; Hochschild, 1983)	<b>Stage 1</b>	<b>Stage 2</b>
<b>Strategy 1: Displaying naturally felt emotions</b> No emotional labour undertaken	<b>Emotional dissonance</b> (using the scale of “expressing emotions” reversed)	<b>Situation 1</b>
<b>Strategy 2: Surface acting</b> Requires little effort but damages well-being		<b>Situation 2</b>
<b>Strategy 3: Deep acting</b> Is effortful but protects well-being	<b>Deep acting</b>	<b>Situation 3</b>



## RESULTS AND DISCUSSION

### Stage 1: Students' emotional labour strategy preferences

As we mentioned before, the quantitative analysis showed that the engineering students used more emotional dissonance strategies than their hospitality counterparts ( $M_{\text{Hospitality}} = 2.34$ ,  $SD = .77$ ;  $M_{\text{Engineering}} = 2.55$ ,  $SD = .76$  groups;  $t(262) = -2.06$ ,  $p = .040$ ), indicating that they were at a greater risk of poor self-esteem, depression, cynicism and alienation from work as indicated in the now 30-year old findings of Ashforth and Humphrey (1993). It showed that, however, there was no statistically significant difference in the two groups' use of deep acting ( $M_{\text{Hospitality}} = 3.04$ ,  $SD = .85$ ;  $M_{\text{Engineering}} = 2.90$ ,  $SD = .78$  groups;  $t(262) = 1.25$ ,  $p = .213$ ). More details on Stage 1 results can be found in Kotluk et al. (2023).

After Stage 1 data analysis, four qualitative research questions were created from the data. These explore the students' accounts of why and when they use emotional labour strategies, what limits their use of these strategies and how their use affects them. We explored these questions in Stage 2.

### Stage 2: The reasons, situations, and factors influencing the use of emotional labour strategies

#### *RQ1: Why do engineering and hospitality students use different emotional labour strategies in teamwork?*

In response to our question exploring why engineering and hospitality students use different emotional labour strategies, it became clear when analysing the data that students' reasons for choosing to use surface acting or not could be divided into overarching binary motivational aspects. For ease of reference, in the following sections, engineering students are referred to with an E and hospitality students with an H.

#### *Extrinsic motivation*

Described by Ryan and Deci (2000) as being "A construct that pertains whenever an activity is done in order to attain some separable outcome" (p. 60), extrinsic motivation was appropriate for four "why" themes from the interview data: productivity, team cohesion, career advancement, and customer satisfaction.

Expressing the emotion felt was linked to terms such as "productive" (Robert E), "rational" (Arnaud E) and "efficient" (Ernest E and Ann H) for both groups of students, as commented by Arnaud (E): "Actually I feel that I have a good reason to feel angry about a teammate, a situation or something I will make that clear because I think it's the most straight way to convey what we feel and to stress the things that we need to sort this out." For both groups, in educational teamwork, this was the "default mode" (John E) but the engineers turned to surface acting on the rare occasions where the needs of the team overrode their desire to communicate honestly as sometimes expressing naturally felt emotions "creates some division sometimes in the team. And then it's also harder to work in an environment like that" (Alex E). Placing the needs of the team above their individual needs was formulated by Paul (E) as "sometimes I felt this and it was not... a good emotion to show because it didn't really make things better for the whole team." Steven (H) explained how he and his teammates used surface acting to try, unsuccessfully as it transpired, to motivate less engaged colleagues with a view to getting "something out of it as a whole team."

Regarding the professional landscape, Evan (H) demonstrated how experience enabled him to do surface acting for the benefit of others:

Situation two would be those situations where I, you know, I've encountered ...[them] enough number of times...for me to know what is correct and what would be the right...emotion to show for the sake of the team, the hotel, the impression of the department or the organisation.

In order to achieve team cohesion, surface acting was used – or expected at least – by the engineers. Arnaud (E) explained that he “tried to keep the team members as close as possible without any friction with the aim of the team being the most performant possible but with a good atmosphere on a working, human and social plane” [original text in French]. John (E) echoed this sentiment explaining how he managed the emotion felt in his team: “In challenging situations I tried to hide not like ... the bad emotions, but ... I don't want to build up a conflict and have a tense team, so I try to always calm down the anger in some people and keep it for me,” while Arnaud explains that he would not show his disappointment “because of the team's mindset.” Surface acting as a concept was more strongly represented overall in the hospitality than engineering students, in contrast to our findings in Stage 1. Ann (H), however, did articulate a desire to modify the emotions she showed as they could “eventually...dampen the spirit of other people...when everybody's is dealing with the same thing.”

An interesting and isolated strong and considered use of surface acting was by Jonathan (H) who had many years of working in hospitality, first as a chef and then in public facing roles, turning from an introvert into someone who was outgoing and engaging. He employed surface acting in most of his educational and professional encounters as he perceived that displaying as a “friendly, smiley” individual would be beneficial to his career advancement: “You need to make yourself the product that you're selling...fake it til you make it.” No evidence of such an approach was found in the data from the engineers.

As expected, all the hospitality students claimed they readily used surface acting in order to ensure their customers' satisfaction but only Evan fleetingly mentioned using it in teamwork in a professional context stating if “I am going through certain emotions which are not considered pleasant, I would not show them for the sake of both the overall harmony of the department and operations” so as not to “impact the overall guest experience in some way.”

#### *Intrinsic motivation*

Intrinsic motivation, defined in contrast to its opposite by Ryan and Deci (2000) as “The doing of an activity for its inherent satisfactions” (p. 60) was conceptualised by the students in two ways – through authenticity and in attending to their mental health. Authenticity was consistently associated with showing the emotion felt. Paul (E) and Ann (H) both used the word “honest” when talking about expressing their emotions in teamwork with Ann (H) also saying she was “blunt” in this context. Demonstrating an acceptance to show potential weakness to teammates, Ernest (E) explained that he saw no reason to “hide that I'm tired” and Alex commented that “when we were frustrated together because something didn't work or we didn't sleep a lot, I never felt like I should hide it to be strong or whatever. ...When we were so frustrated, we would just say it.” Regarding the second area of interest in intrinsic

motivation, Percy (H), who worried about causing “strife” in team interaction, explained how he used surface acting to build a “barrier” so he did not take on everyone else’s “emotional baggage” because “that’s not great for the mental health.” No engineers alluded specifically to mental health in their interviews.

### *Deep acting*

Framed by us as ‘situation 3’, deep acting was, for engineers, generally dismissed with comments like “I don’t really relate to it” (Alex), “There is no need to try to feel an emotion” (Arnaud) and even as, “I feel like it’s maybe the most undesirable situation, I think it’s a good thing that it didn’t really happen” (Robert). However, John, a team leader, expressed how he always tried to “stay calm and discuss with everybody” when tensions were rising between divisions showing potentially a nascent deep acting behaviour. Ernest, one of the most down to earth of the engineers, remembered a time when one of his teammates tried but failed to do deep acting: “We were all so happy, I took a teammate in my arms and we had a little... had tears down our cheeks and another one was there and he just looked at us and ‘Oh, I’m. I’m not feeling the same as you and I would like to feel it’ but he couldn’t. He wasn’t feeling it.”

In general, the hospitality students had quite a different approach to deep acting. Evan, who has a long professional background in the industry, commented that he was “not alien to this concept” and both he, Jonathan and Ann expressed how important it was in their professional lives to anticipate customers’ needs, to try to put oneself in customers’ shoes through empathy to determine how to best deliver an outstanding service.

### ***RQ2: When do engineering and hospitality students use different emotional labour strategies in teamwork?***

Our analysis showed that students used both intra- and inter-personal reasons when deciding whether or not to use EL strategies in their team interactions.

#### *For intrapersonal reasons*

One of the saddest accounts for the two female researchers to read in this data set was that of Alice (E) who explained how fear of sexist repercussions of showing her emotions lead her to be “as neutral as possible”, dialling down not only the expression of sadness but even of happiness and of taking up less space than her male counterparts. This impression management was linked in this case to gender and was picked up by her teammate Robert (E): “Simply the fact that some women in the team were just not considered as much as some men in of the team...we could feel that it was more difficult for her to express.” While gender was mentioned by the female hospitality students, it was not related to the expression of emotions. Our second category in intrapersonal reasons is that of culture. Lili, an Indonesian hospitality student, described her hesitancy to show emotions as she was unsure how she was expected to respond in a new culture. She explained how she showed a “neutral face...because I’m not a type of very expressive person” and also, “It’s usually because I’m still thinking what kind of expressions...also how to respond. Because this is my first time in Europe. So sometimes, well, if I’m in Indonesia or in Asia, I know how to react quickly, but because it’s different ... kind of environment.”

### *For interpersonal reasons*

The participants volunteered a rich vein of data concerning the context of the environments governing whether they would use emotional labour. The relationship with their interlocutor was important for both groups with, as expected, interactions with friends and classmates “because we’re peers” (Jonathan H) involving showing the emotion felt “95% of the time” (John E). The use of surface acting for negative emotions in these situations was mentioned by both groups and only Alice (E) stated that even with peers she would use emotional labour for positive emotions if she felt she was not being respected.

The students’ perception of the expectations of their role was strongly linked to implementing surface acting. Paul (E) showed this strongly with the comment “I would say situation 2...was, during the whole competition, because I was very frustrated but I would say that it was part of the job and so I didn’t like show this to the outside world.” Those who had leadership roles referred to these often too as epitomised by John (E): “So as a team leader, I tried to show the example and not like at the first problem go and see the other team leader and say, ‘oh, you did shit’ and it’s not OK.” For the hospitality students, surface acting was much more linked to their professional public-facing role with a strong consensus that negative emotions could not be shown with Ann (H) explaining that, “You definitely don’t want [personal situations]...to affect your overall performance at work.” Robert (E) and Alex (E) both explained how they felt their credibility with others and therefore their confidence grew over time and facilitated their move from using surface acting to showing their emotions with other team leaders. Robert (E) later used the term “legitimacy” for the same concept. These notions were not expressed by the hospitality students in relation with surface acting.

### ***RQ 3: What limits engineering and hospitality students’ use of different emotional labour strategies in teamwork?***

Our third RQ focused on what limited students’ ability to undertake surface acting. Both groups eloquently expressed how exhaustion, both mental and physical, played a role here. Jonathan (H) who was so proficient at putting on a mask explained how he could be pushed to the limits of his mental capacity by colleagues: “[I] try to be pacifistic until my emotional capacity runs out... It takes an exceptional amount of bad behaviour for me to boil over, but when it happens, I lose my mind” and how physical exhaustion affects him too: “I had done 40,000 steps one day...carrying things from one floor to the other...I was just at my breaking point...and like the mask dropped and everybody noticed.” One of the engineering students, John, noted how “because I was already exhausted...doing the situation two was harder.”

***RQ4: What are the effects of using different emotional labour strategies in teamwork on engineering and hospitality students?*** Our final RQ explored the effects of using emotional labour strategies on the two groups of students. Evan (H), who had considerable experience in the industry, felt no different after doing situation 1 or 2 although he did reflect after these encounters, as did Marie (H) and Percy (H), pondering on the appropriateness of their actions. The notion of needing time to “decompress” was articulated by three hospitality students: Percy, Marie and Jonathan but not by any of the engineers, with Percy (H) articulating, “I just I generally find myself always in situation two, where I’m kind of just putting on a

face even if I'm not 100% happy with it, and then by myself, I'll vent maybe a bit." The hospitality students were much more forthcoming regarding the effects of doing surface acting than their engineering counterparts.

### **A general overview of findings**

As a summary, for each area of investigation, a heat map is presented (see Table 3) below illustrating the strength of the articulation of the concept rather than solely its numerical prevalence in the data set. The darker the colour, the stronger the articulation of the concept. Such an approach aligns with the interpretive nature of this study. For example, the strong articulation of 'needs of the team' by engineering students emanated from John's (E) vivid description of the occasion when, despite feeling exhausted, he concluded that

there was a point where I would have wanted to just say, OK, these people, I don't want to talk with them anymore, but I did not do that because I forced me a bit to keep a relation with them, because it would be better...for the team to still have a discussion and not completely break apart

while Evan (H) is much blander in his description of "doing situation 2" as shown on page 6 above.

Table 8 Comparative heat map of intensity of articulation of concept

			Engineering students	Hospitality students
Reasons why surface acting is chosen or not	Extrinsic motivation	Needs of the team		
		Team cohesion		
		Career advancement	Not mentioned	
		Customer satisfaction	Not relevant	
	Intrinsic motivation	Authenticity		
		Mental health	Not mentioned	
When surface acting is chosen or not	Intrapersonal	Impression management		Not mentioned
		Gender		Not mentioned
		Culture	Not mentioned	
	Interpersonal	Relationships		
		Behaviour for the role		
		Credibility and confidence		Not mentioned
		Legitimacy		Not mentioned
Limiters for being able to enact surface acting		Exhaustion - physical		
		Exhaustion - mental		
Effect of enacting surface acting		It has no effect	Not mentioned	
		It feels good	Not mentioned	
		Exhaustion	Not mentioned	
		Need to vent	Not mentioned	
		Self-reflection	Not mentioned	
Deep acting				

Key:

Strong intensity	Moderate intensity	Minimal intensity
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## FINDINGS AND RECOMMENDATIONS

Summarising the findings into a coloured heat map as in Table 3 demonstrates that to answer our first RQ, surface acting is enacted for both extrinsic reasons: either for the good of the team (E) or for the customer (H); or not undertaken for reasons of



authenticity (E and H) – often depending on the interpersonal context of the encounter.

Our second RQ concerned the context of the encounter and its link to emotional labour. Its interpersonal nature was deemed especially relevant for the engineering students while the notions of credibility, confidence and legitimacy were not mentioned by the hospitality group who focussed more on their role in the professional interaction.

In answer to our third RQ, there was consensus between both groups that physical and mental exhaustion limits the capacity to undertake emotional labour strategies.

Regarding RQ 4, perhaps because they undertook surface acting more readily and more often than their engineer counterparts, i.e., they took it as a given that it was required in a working environment, the hospitality students were more expressive on its impacts on their well-being focussing on a need to take time to reflect and vent subsequent to undertaking emotional labour.

The significance of “learning by doing” is hard to overstate from the data we collected although a clear distinction appeared in the students’ accounts regarding where and how they had learnt to manage the display of their emotions. The engineers mentioned how while their curriculum focussed on theory, they hugely valued the human experience of extra-curricula inter-disciplinary projects such as the electric racing car, as articulated by Paul who reflected that he had learnt more about “emotions, teamwork, and living with others” than in “four or five years of academic study”. The original, multi-faceted extra-curricular engineering project, completely under the control of students with minimal faculty engagement, enabled these “rational” and “logical” students to experience emotion-management and conflict not only with their friends and team-mates as with more typical assessed projects, but also with other disciplines, in moments of “exhaustion” and “stress”, as Paul commented, just like happens in the professional world.

For the hospitality students it was during their practical semesters (Steven) or their time working in a professional environment (Ann, Evan, Jonathan, Lili, Marie and Percy), and often from a mentor (Ann, Jonathan, Marie) that they had learnt how to present themselves rather than through their institution-based curriculum echoing the findings of Nyanjom and Wilkins (2021). In addition to invaluable internships, we recommend therefore that rather than structured teaching about using emotional management techniques, or perhaps as a adjunct to such content, students participate in real-life, multi-discipline, long-term, self-governing, non-curricular team projects which develop leadership and otherwise-hard-to-teach interpersonal skills.

Our Stage 1, quantitative, findings, showed that hospitality students used surface acting less in teamwork than engineering students were not upheld by our second, qualitative piece. One potential reason for this is that the hospitality interviewees all had work experience and often reflected on this during the interviews rather than on team work in an educational context, while all the engineer interviewees reflected solely on their experience in the specific extra-curricular project, they were involved in. The hospitality students who participated in the quantitative part of the project

had less work experience and potentially reflected solely on their educational teamwork experiences in their responses.

## LIMITATIONS AND AREAS FOR FURTHER STUDY

As is typical with IPA studies, we recognise that the small number of participants in this research has provided extremely rich data with a subjective analysis. The group of engineers was a friendship group from a limited European context while the hospitality group was more heterogeneous culturally and in age but in both cases only one institution was the focus and males were potentially over-represented (6/7 and 4/7 respectively). It would be interesting to see at what point saturation occurred with a larger, potentially more diverse, sample.

Our data contained one participant, Lili, who voiced a potential link between her ability to communicate freely with cultural differences she experienced which begs the question of the extent to which culture affects engineering and hospitality students' ability and willingness to communicate freely or engage in emotional labour in teamwork. This would further work undertaken to date by Allen et al. (2014).

We noted that hospitality students enact more deep acting than their engineering counterparts but to what extent this is linked to their emotional intelligence is currently unknown. A quantitative study involving both populations could shed light on this area of study.

Finally, we gathered interview data on but have not yet explored the extent to which social identity theory (Tajfel & Turner, 1979) as applied by Ashforth and Humphrey (1993) maps onto the ability of engineering and hospitality students to communicate freely or choose to use emotional labour in their inter- and intrateam interactions.

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# EVALUATION OF PRE-SERVICE TEACHERS' INCLUSION PERCEPTIONS AND PRACTICES IN TEACHING PRACTICUM

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## ABSTRACT

*Inclusion refers to the human rights that education should ensure and facilitate. Inclusive education provides an environment that respects and caters to the needs of each individual based on the social inclusion theory. It aims to reduce exclusion and discrimination. The purpose of this qualitative case study is to investigate the opinions pre-service teachers about inclusive education before and after the intervention, using semi-structured interviews and document analysis. Additionally, the study aims to investigate the extent to which pre-service teachers integrate inclusive education into their teaching practicum using checklists. Lesson plans and teaching materials of each practicum are also analysed to provide rich data. The data is analysed using content analysis. The preliminary results showed that pre-service teachers were unclear about inclusion before the intervention and had no idea what their course content might be like. Post-test participants reported that their inclusion perspective was limited before the lesson but they gained a broader perspective after the intervention and felt more responsible afterward.*

## INTRODUCTION

Providing an environment that is inclusive of all individuals' needs within the context of their rights forms the basis of inclusive education. There are many different viewpoints on inclusion, but it can be understood as a process whereby educational institutions are restructured to meet the needs of all children, regardless of disabilities, gender, ethnicity, language, religion, health, socioeconomic status, or other factors (United Nations, 2015; UNESCO, 2020). Inclusion is not about the opportunities that a group offers to others, rather it is a concept that stems from justice and democracy (Rapp & Corral-Granados, 2021). Due to its direct impact on society, education should create an environment that promotes unity, reconciliation, and respect. For a high-quality education experience, inclusive education that takes social inclusion theory as a base is essential. The World Bank (2023) describes social inclusion as “process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity”. Inclusion practices aim to eliminate

exclusion and discrimination resulting from prejudices and negative attitudes toward people's different characteristics and circumstances.

The role of teachers in realising social inclusion in society is imperative; however, teachers' subconscious biases may lead to exclusion in the classroom. Knowledge and attitude of teachers about inclusive education were found to be significantly related (Bhatnagar & Das, 2014; Forlin & Sin, 2010; Loreman et al., 2007; Tsakiridou & Polyzopoulou, 2014). It is critical that pre-service teachers gain knowledge about biases and methods for eliminating discrimination as part of their professional development. The aim of this study is to analyse how prospective teachers' perceptions and integration of inclusion in their teaching practicum change after an intervention. The research questions are;

- What are the opinions of prospective teachers about inclusive education?
- How much change took place after an intervention?
- To what extent do pre-service teachers integrate inclusion into their teaching practicum?

## **Theoretical Background**

True inclusion goes beyond just offering opportunities. It's about creating a society that's built on justice and democracy (Rapp & Corral-Granados, 2021). Education plays a critical role in building this society by promoting unity, reconciliation, and respect. To truly deliver a high-quality education experience, it is necessary to ground inclusive education in social inclusion theory. Gidley, Hampson, Wheeler, and Bereded-Samuel (2010), stated the following;

“Social inclusion can pertain to a variety of areas of social groupings including socio-economic status, culture, and primary language, including indigenous groups, and those for whom English is not a first language, religion, geography, including those in regional, rural and/or remote areas, gender and sexual orientation, age, including youth and senior groups, health, including physical and mental disabilities, unemployment, homelessness” (p. 2).

### *Inclusive Education*

The term inclusion refers to the human rights that should be ensured and facilitated by education. Inclusive education aims to provide an environment that respects and meets the needs of each individual. It works towards reducing exclusion and discrimination. According to Koutsouris, Anglin-Jaffe, and Stentiford (2020), “In the context of education, inclusion is only used in a positive way to refer to belonging and participation due to its association with values such as respect and equality” (p. 180); however, the term “respect” can be understood and interpreted differently among different people. For instance, young people may interpret respect as their participation in social interactions by accepting their individual preferences (Koutsouris et al., 2020). Therefore, the inclusion philosophy should be integrated

into teacher education programs so that teacher candidates can be aware of these differences in the perspective of respect and equity.

Several declarations have been made to enhance inclusive education. These declarations are significant sources to improve pre-service teachers' perspective of inclusive education as well as the theory of this study. To start with, The UNESCO Convention against Discrimination (1960) set important goals to enhance inclusive education. Besides, Sustainable Development Goals aim to enhance social inclusion. To exemplify, goal 4 refers to quality education, which eliminates disparities to achieve inclusive education. Furthermore, goal 5 refers to gender equality; goal 10 is related to reducing inequalities. Another one is goal 16, which aims to improve peace, justice, and strong institutions.

On top of The UNESCO Convention against Discrimination (1960), Educational World Declaration for All (1990), Declaration and Action Framework (Salamanca Report) (1994), UN Convention on the Rights of Persons with Disabilities (2006), General Comment No. 4 to CRPD Article 24 (2016), National laws and policies that make progress towards inclusiveness (UNESCO,2020) are some of the important sources for inclusive education.

### *Inclusion in Teacher Education*

Gaining the inclusion perspective is substantial for teachers and teacher candidates. According to Forlin (2010), "With the movement towards an inclusive schooling system, teacher education has become an important aspect of enabling this, or conversely disabling this" (p. 649). Therefore; in teacher education programs, several inclusion-related principles are required to be provided. To start with, meeting diverse student needs should be considered a crucial issue since there are differences among students in each classroom. Moreover, promoting equity and social justice for pre-service teachers, and legal and ethical issues, which are related to pre-service teachers' behaviours in class as well as out of class are some of the necessities in teacher education.

In teacher education programs, in addition to the principles that are related to teachers' behaviours and sense of ethics, inclusive principles should be gained for the sake of academic goals. To exemplify, being aware of the differences among students as well as their special needs is necessary to improve academic goals. Moreover, adjusting the teaching strategies based on learners' needs is an important skill for a teacher; thus, how to enhance teaching strategies should also be paid more attention to in teacher education programs.

### **Problem Statement**

In contemporary educational settings, the integration of inclusive education principles is a paramount concern. This study aims to meticulously examine the transformation in prospective teachers' perceptions following a targeted intervention and their capacity to integrate inclusive education principles into their teaching practicum effectively. This research addresses several interconnected issues



prevalent in the current educational landscape: Prospective teachers and teacher candidates frequently lack a comprehensive understanding of inclusive education, resulting in exclusionary practices that can hinder the educational experience of diverse student populations (Forlin, 2010).

1. These teachers and teacher candidates often grapple with an inadequate theoretical foundation in inclusive education, leading to challenges in implementing appropriate strategies for students with varying needs and abilities (Moriña, 2017).
2. The physical and psychological demands faced by teachers in inclusive classrooms, including overcrowding and diverse student requirements, may contribute to teacher burnout and negatively impact the quality of education for students with disabilities and diverse backgrounds (Forlin, 2012).
3. Limited empirical research exists to uncover and address these multifaceted challenges, hindering the development of effective solutions (Furlin, 2010; Moriña, 2017; Lindsay, 2003).

This study endeavours to shed light on these issues, offering valuable insights that can lead to the development of strategies and interventions equipping prospective teachers to create more inclusive and effective learning environments for all students.

### **Significance of the Study**

Teachers are the stakeholders of equitable and engaging learning environments by adopting the inclusion principles. According to Titone (2005), the goal, that should be adopted by teachers, of the inclusion theory is to create environments where all K–12 students, regardless of their abilities or limitations, are fully engaged in the learning community and advance academically alongside one another. Ari, Altinay, Altinay, Dagli, and Ari, (2022); Su, Guo, and Wang, (2020); Sanagi (2016) also attach importance to the significance of teachers, as stakeholders, in inclusive education. Since teachers should be aware of their responsibilities of being the stakeholders, they should be guided to enhance all these abilities mentioned above before their graduation (Forlin, 2010; Forlin, 2012; Reynolds, 2001); in other words, teacher education programs should provide adequate courses to enhance these skills. This research provides a valuable set of findings and discussion to prove if teacher education programs integrate some courses to enhance inclusion perspective.

### **Limitations**

Even though this research provides important insights regarding enhancing the perspective of inclusion in teacher education programs as well as suggestions for further studies which may be helpful to detect the current problems in implementing inclusive education and the lack of integration of this perspective in teacher education programs, and it will also be beneficial to improve this perspective, There is a limitation to generalizing the study group's findings for understanding the change in perceptions of the intervened teachers.



## **METHOD**

According to Maxwell (2008), qualitative research design “emphasises the interactive nature of design decisions, and the multiple connections among the design components” (p. 218). This is a qualitative study that seeks to explore the significance of “inclusive education” for the participants. It aims to investigate the extent to which they can integrate the inclusive philosophy into their teaching experience. The study will focus not only on the teaching actions but also on the participants as individuals and the teaching context. In this study, there are some limitations. The researchers had to wait for three weeks after the semester started before, they could talk about their teaching or internship experiences. Also, due to the current work schedules of some participants, the intended interviews with three of them have been delayed.

### **Participants and Context**

The study participants were seven English teachers who completed an Inclusive Education course during their third year in an English Language Teaching Program at a state university in Turkey. During the initial phase of this course, we conducted semi-structured interviews with 7 teacher candidates. After their graduation, we conducted follow-up semi-structured interviews with these participants who eventually completed their internships at a public high school in their final year. In the final phase, we interviewed a total of four participants.

### **Data analysis**

Qualitative data analysis is a useful approach to identify themes and concepts related to inclusive education. To analyse teachers' comments and quotes, they are coded using content analysis (Creswell & Creswell 2017). In qualitative data analysis, predetermined themes and concepts are identified during the analysis process (Creswell & Creswell 2017). For comments and quotes, teacher candidates are coded as TC (teacher candidate) for pre-test and T for post-test, and each candidate is assigned a random number such as TC 1 or T 1.

## **FINDINGS AND DISCUSSION**

The data gathered from teachers was categorised and interpreted based on the themes that emerged in this section. Afterward, we compared the results from pre- and post-tests.

### **Definition of Inclusion and Inclusive Education**

Teachers had no idea about inclusion when they were first interviewed, they stated “There was nothing in my mind, there was no concept. I thought of it like a lesson about the scope of the curriculum” (TC2).

After the intervention, they became more aware of the importance of inclusion in education. They defined inclusion as “providing education to all students without

discrimination”, “the same and equal level of education for all”, and “taking into account the age, gender, race, etc. differences”. Their explanations of inclusion were detailed. “As far as I understand it, it is an effort to give a common education without excluding any group without being a minority or majority, it is the idea of giving a common education, these groups can be divided into race, religion, gender, age group, socioeconomic status, socio-cultural status, socio-economic status, socio-cultural status, not refugees, not immigrants, without any distinction, it is a way to give equal education to everyone without any distinction” (T7).

### **The Need for Inclusive Education**

Before the intervention, they were unaware of inclusive education, so they never questioned whether it was necessary or not. They held a belief that education inherently encompasses inclusivity. Almost all teachers expressed that they believe it is necessary, however, there were numerous misconceptions such as “to see what kind of systems are applied in different countries” and “teaches us how to control classrooms”, “analysing the past experiences at school related to differences between students”. Only a few teachers believed it was necessary because “Turkey has a diverse population with many immigrants”.

After their teaching experience, they believed that inclusive education was necessary due to several reasons. Some stated that it is a necessity for teachers “to avoid bullying”, “to increase awareness” and “to avoid some problems”. After becoming aware of the need to provide inclusive education, the teachers changed their approach while teaching. One of them gave an example. “I often give homework to the students and it is mostly word writing. last time I noticed a deformation on the pinky finger of a student in my class and I said I wish you had told me earlier; I wouldn't have made you write it down. After that I told the student to read and study, but not write it down” (T2).

### **Teachers' Knowledge and Attitudes**

Teachers were asked about their views on inclusion, and all agreed that it is important for education. They gave different reasons, but overall, they believe in creating an inclusive learning environment for all students. Some highlighted the rights of humanity. “We are human beings and we have the right to receive education”, “Things we should pay attention to on behalf of humanity”. Some underlined “equality of opportunity”.

After their teaching experience, they realised that inclusive education is mostly about “learner-centred education”. One of them claimed “English teachers are more conscious about inclusive education in general. When I compare English teachers with teachers of other branches, I think that they are more conscious because English teachers have a much broader global perspective on the world” (T6). The teachers have realised that having a global perspective is crucial when it comes to promoting and improving inclusivity. This realisation has led them to understand the importance of cultural diversity and how it can contribute to creating a more accepting and inclusive learning environment. By embracing different perspectives

and experiences, the teacher has been able to expand their knowledge and understanding, which has ultimately allowed them to better serve their students.

## **Stakeholders**

Both pre-test and post-test data indicated that teachers recognize the importance of sharing responsibilities for inclusive education. The stakeholders they mentioned are “teachers, students, principals, parents, school, pre-school education, university, public, parents, school district, counsellors, Ministry of National Education, Health Services, transportation, president, all ministers, teacher (has the smallest share), who is responsible for education in the world context, immigration authorities, and also religious institutions.

## **What can be done to promote inclusion?**

According to pre-test data, teachers have proposed ideas for integrating students with different traits and qualities. One teacher highlighted the issue of gender. “There is gender discrimination, I try to make them sit together more and try to change toys with the newer generation ones”. Another one stated that “If there is a student who is excluded due to any situation, I try to include them more in the group”. Additionally, one of them emphasised the significance of motivation. “There may be students who are not interested, and I can somehow motivate them”. They plan to engage the students through group work and collaboration by “mixing the students with different traits”. There are many immigrants in Turkey, so teachers in this study believe it is their responsibility to help with integration by addressing language barriers. “Maybe my student won't know Turkish, I will teach it”. Other teachers noted that they either experienced exclusion themselves or witnessed it. “I had a classmate with Down Syndrome in primary and secondary school. He was an inclusion student; he was going to the Guidance and Research Centre. But for example, if I hadn't met that friend of mine and hadn't studied at that school, I wouldn't have had any idea about Down syndrome until I graduated from the university and took the attention deficit hyperactivity disorder course. I don't know, if I didn't have an autistic friend, I would have no idea about autism. I don't know if it has changed now, but ten years ago there was no such thing” (TC3).

After teaching, post-test data revealed that teachers related to real-life classroom situations and shared personal experiences. “One of our students in a private education institution had ADHD and I was just taking the ADHD course that year. There was a problem here and I didn't have the solution. ....I tried to convince the company that my teaching would harm the student because I didn't know how to give that training to him. But I still don't have this talent” (T7). They are aware of the limitations of the school environment, which makes it difficult for them to engage with every student. “For example, if the class size is reduced by half, I would learn the names of all the students and address them by name. I would get out of the mentality that I can barely finish 2-3 pages of activities and I can give a more efficient education” (T2).

One of the teachers mentioned bullying at schools. “I remember very well that when the problematic students I mentioned entered the class, they were first excluded by the students. Neither sat next to them nor contacted them, when they started talking, the other people were busy with their phones, looking out the window, drawing pictures. No communication was exchanged with him. So, society makes that person feel lonely. Social awareness is needed both for integrating that person into society and for seeking public support in such matters” (T7).

## **Lesson Plans**

During the study, teachers were requested to provide the lesson plans they had prepared before teaching their classes. We examined these lesson plans to identify if they had an inclusive perspective. Overall, the findings showed that the majority of teachers were not aware of the need for inclusivity in their lesson plans. However, we found that some of the approaches and techniques they had planned to use were aligned with inclusive education. Greeting each student in a positive manner, choosing a general theme in which integrated skills are taught, the use of technology, teaching techniques for different learning styles, scaffolding, being prepared for the possible problems, providing all lesson materials to each student, and addressing students' socio-economic needs are among them.

## **CONCLUSION**

Teacher candidates generally have positive perceptions of inclusiveness, which encompasses not only the involvement of disabled individuals but also all types of differences. However, before taking a course on inclusive education, most of them were unaware of this concept. After completing the course, they gained a broader understanding of inclusion and its stakeholders. Prior to the course, their understanding of stakeholders was limited to teachers and students, but after the course, they realised that various stakeholders must share the responsibility for inclusion to be successful. Regarding their plans for promoting inclusion, initially, they only mentioned activities to be implemented in the classroom environment, without considering outside the class. However, after the course, some realised the importance of cooperation with other stakeholders and taking necessary precautions outside the classroom to promote inclusion.

This study suggests that prospective teachers can improve their skills through education. Qualitative studies can help understand the attitudes that teachers have towards certain types of information. As they gain experience, their awareness increases. However, teacher candidates may struggle to act according to their students' needs, despite being able to detect the differences between them. This difficulty could be due to external factors such as classroom size, job requirements, lack of experience, or influence from colleagues' opinions.

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# SUSTAINABLE IMPROVEMENT AND STRONG RESULTS BASED ON TRUE PARTNERSHIP BETWEEN RESEARCH AND PRACTICE

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## ABSTRACT

*The study departed both from practitioners' needs and evidence from research. Teachers and special educational needs teachers in Early Childhood Education have called for methods to support play interaction and language skills, in particular for additional language learners. A collaboration network between researchers and practitioners was established and some methods - Play Time/Social Time (PT/ST) and Dialogic Book Reading (DBR) - were tested and discussed. The principals were involved and supported the organization; the practitioners participated actively as members of the project group. In 2019 the Book Reading intervention started with a cluster randomized trial; the play intervention started with case studies. In 2019, 13 preschools participated, and in 2020, 20 preschools. The results from the trial show that the children increased their vocabulary after DBR; the results from the case studies show that children's social play increased after PT/ST. Important components for the positive results were the collaboration and responsiveness in training and coaching. The study has employed a three-step model: a first phase of training and piloting; a phase of periodized intervention; a third phase in which the practitioners' become mentors for their colleagues. The methods PT/ST and DBR have been adopted in the practice, based on the practitioners' positive evaluations; the implementation model is used to spread the innovation into new settings.*

## THE REAL NEEDS OF THE FIELD

Practitioners in early childhood education asked for methods supporting children's social interaction. They lacked strategies to involve children that were not naturally engaged in free play. Practitioners expressed also a need for strategies related to the prioritised goal of supporting children's language development, and in particular the skills of additional language learners; these students were a majority in the participating preschools.

Within the research project, *Social Interaction in play time and language activities: early interventions in inclusive Early Childhood Education for Children with Special Educational Needs*, funded by the Swedish School Research Institute 2019-2023, the practice's request for methods has been processed within a practical research project.

### The main focus

The preschool's principals, special educators, teachers and researchers have formulated plans of intent in which implementation of evidence-based interventions is described. The field of tension between proven experience and scientific knowledge can be intertwined and be fruitful for practitioners and researchers (Siljehag, 2007, SOU 2018:19). The research has been conducted departing from practitioners' needs, and applying evidence-based methods that were tested for the first time in our context (Siljehag et al., 2019, 2020).

International documents emphasize every child's right to education and social community in inclusive environments (OECD, 2017; United Nations, 2006). The bioecological model (Bronfenbrenner & Morris, 2007) sees children's development as the result of proximal processes, in meaningful interactions with peers and caregivers. Early interventions are recommended for children with developmental delays or special educational needs, who are not always naturally engaged in such interactions. In this project, with the support of implementation research (Dust et al., 2013; Odom, 2009; Odom & Fetting, 2013) we have carried out play- and language interventions with the aim of increasing children's participation and interaction (Buysse et al., 2011; Westling Allodi et al., 2019, 2020). The theoretical framework of early childhood special education (Odom, 2016) with the application of peer-mediated instruction has inspired the research with Play Time/Social Time; the framework of improvement of oral language through interventions (Hulme et al. 2020) have inspired the research with Dialogic Book Reading. Some conditions need to be realized before an evidence-based intervention is implemented that intends to provide improvement for every child: multidisciplinary knowledge from profession, practice and theory and a technical-eclectic view of knowledge, man and society have to be brought together in the project (Odom, 2009, 2016).

### *Research questions*

Does the participation in PT/ST activities increase the engagement in free play of children with SEN?

Does the participation in DBR increase children's vocabulary and expressive language, and in particular those of additional language learners? Which are the teachers' experiences of working with these evidence-based interventions in early childhood education?

In the spring of 2019, 13 teachers received training in DBR and PT/ST. DBR was tested with a randomized trial and PT/ST with case studies. Reading of 6 selected picture books was carried out daily for 5 weeks in Autumn 2019 with 85 children. 25 sessions of PT/ST in Autumn 2020 and Spring 2020 were conducted with 3 children. In Autumn 2020, the interventions were repeated with new children for 8 weeks. All teachers received coaching from the special educators during the intervention period. The results show increased interaction in play after PT/ST and increased vocabulary after DBR. The teachers report strengthened relationships between educators and children, and between children.

### **WHAT IS DIALOGIC BOOK READING?**

DBR is a planned, organized and structured learning activity that provides repeated opportunities for children to read and talk about the same book several times. The method supports children's language and focus on developing their vocabulary and expressive skills. It is intended to be used with a small group of children and the framework creates an inclusive reading environment, where the children become confident and actively engaged in dialogue.

#### **Reading with dialogic book reading**

When the teachers read with DBR they use a reading technique that helps the children to explore the book at a deeper level. By addressing different levels of questions to the children; called CROWD (completion; recall; open-ended; why-when-what-where; distance) questions, the teacher supports the children to define and understand new words, talk about the story and connect to their own experience.

The Reading technique also includes a strategy called the PEER that indicates how the interaction should be carried out by the teacher: with Prompts to the child asking to say something about the book; with Evaluation of the child's response; with Expansion of the child's response by rephrasing and adding information to it; with Repetition of the prompt to make sure the child has learned from the expansion. The way that the teacher uses CROWD and PEER questions encourages the children to be a part of the storytelling.

### *Learning new words – expand vocabulary*

During the reading particular attention is paid to specific target words from the storybooks in purpose to develop and expand the children's vocabulary. The words were chosen from criteria such as: The word should be new for the children, concretely depicted in the book, available for the children to see so that they could be explained. The words should have high usability for the children, and be relate to the words that is familiar to the children.

## **WHAT IS PLAY TIME/SOCIAL TIME AND LEARNING ACTIVITIES?**

The focus of the evidence-based method Play Time/Social Time is on the relationship between the children. The aim is to develop six social skills for children in need of support and their peers. The children are learning from each other through structured playtimes. This short learning activity consists of two parts; a minicircle-time and a staged play. The teacher is guiding and encourages interaction between the children.

The first step in PT/ST is to arrange the environment to promote interaction. A limited space increases the child's propensity to interact socially with each other. The learning activity contains a short Mini-circle-time with the purpose to describe and demonstrate the social skills and let the children try and practice. During 25 days, the six social skills are introduced and practiced. The skills are: Sharing-offering; Persistence - maintaining; Requesting to share; Organise play; Agreeing; Helping-give or ask for help.

### **The mini-circle time**

The teacher describes and models the social skills for the day.

An example to introduce the skill sharing is: When you share, you look at your friend, you put a toy in her hand, and say: here! Then the children have the opportunity to try it themselves. The teacher also demonstrates the opposite. For example, the teacher does not look at the child but looks away when she hands over the toy.

### *Staged play*

The learning activity also contains a short playtime. After the mini-circle time the children play with each other during a staged playtime for about 6 minutes. The short time gives the children the opportunity to experience the playtime with positive feelings. The teacher shows the children to the prepared play-area and tells them about the play theme for the day, for example play with building blocks or a restaurant play. The play should be chosen from the children's interests and may also be chosen from the Play Time/Social Time manual. When the children are playing the educator encourages and prompt the interaction between the children when

necessary. The teacher continues to support and use the concepts even other times during the day. The purpose is for the teachers to generalize the social play skills in different interaction situations.

## **RESULTS FROM DIALOGIC BOOK READING AND PLAY TIME/SOCIAL TIME**

We tested the method Dialogic Book Reading in a randomized trial with control group and switching replication design (or crossover design). The participants were 85 children in 9 preschools. The children were randomized to A and B group. The A group received the intervention during the first 5 weeks. The group B received the intervention in the second period. All children participated in 25 reading sessions during 5 weeks. The group A was intervention group and group B was control group first and then the group switched condition in the second period. The children's skills were assessed at pre-test time 2 and time 3 on broad vocabulary, deep vocabulary, and narrative skills. We collected also data on children's self-reported well-being.

We report large intervention effects on vocabulary deep skills. We saw also ongoing growth on broad vocabulary skills, but no intervention effect. Dialogic reading is effective after a short but intensive intervention, even for additional language learners. We identify as important factors: teacher involvement, previous practical training, fidelity of implementation and coaching. The impact of DBR was appreciated by the practitioners and their principals. DBR is now implemented in 59 preschools – 320 teachers have been trained so far.

We have carried out the method Play Time/Social Time in terms of a case study of peer-mediated teaching. The results show that the children became more engaged and interacted more with peers in free play. The teachers appreciated that their teaching supported the children's social interaction. This gave the teachers new professional integrity and they could act as mentors to their colleagues. We have developed a step-by-step process and the teachers could act as mentors. Now 26 teachers have been trained and 44 children have received the play intervention.

### **Results from implementing play- and language interventions**

The preschool teachers have experienced working as intervention preschool teachers in the regular activities. The preschool teaching profession and the special education profession have been expanded with skills in meeting the observed needs of the children by implementing evidence-based play and language interventions. Selected methods increased the children's knowledge.

The project shows an implementation process consisting of a three-stage model; 1) implementation of training, reflections, coaching, 2) Implementation of selected interventions, 3) Broadening, deepening – sustainable development through adaptations, dissemination of methods, training in mentoring.

## THE CONTRIBUTION TO THE DEVELOPMENT OF KNOWLEDGE

The study contributes with new evidence from the Swedish context of the positive effects of Dialogic Book Reading with a cluster randomized design with switching replications.

Play time/ Social time has shown to be a promising and feasible early intervention, but more research is needed to evaluate its impact.

The partnership model developed with practitioners is a contribution to the development of knowledge on conditions for sustainable early interventions and implementation processes.

In our context, evidence-based interventions are still very rare, partially because of a pedagogical culture that tends to avoid early identification of needs (Nordic Centre for Welfare and Social Issues, 2012). Our research show that interventions are feasible and can be effective even in our context.

### Effects

The educators have developed competence in both following children's interests and managing children's needs for evidence-based education in planned and spontaneous activities. The children's success has surprised the teachers (Riad, 2023; Siljehag, 2021) but they feel also successful when they experience that their instruction produces visible improvements in children's skills. Structured observations have increased the inclusive professional knowledge and knowledge of each child (Siljehag & Allodi, 2023). The teachers that have performed the interventions first are now mentors for colleagues. The preschools' staff has been given a special pedagogical function, which has given security in prioritising early efforts of daily interventions for a period of time. The project's emerging 3-step model involves: training in the method, support of coaching and time for reflection; daily play and/or language intervention; sharing the knowledge on the method with other teachers as mentors. At all the steps the special educators are available as coaches. The work is documented by produced educational films and a website (Westling Allodi & Siljehag, 2019).

The ongoing collaboration has contributed to meeting both the requirements for responsiveness to the conditions of practice and the requirements for scientific rigor. The collaboration was built over time with meetings, training sessions about the methods to be employed, followed by testing them in practice, discussing design, questions and challenges and sharing good experiences.

### *The sustainability of research*

DBR and PT/ST have been evaluated as effective and have been adopted by the principals. The further implementation is now conducted by the educators that have been trained in the research project. The methods have been adopted since they were

effective and they answered to a perceived need in the practice. Another goal would be to introduce knowledge about evidence-based early interventions in teacher training programs. We have produced video materials for this purpose in which researchers and practitioners talk about their experiences and the study's results (Siljehag & Allodi Westling, 2022a, 2022b).

## A TRUE PARTNERSHIP BETWEEN RESEARCH AND PRACTICE

In this project we have shown how a true partnership between practice and research has developed over time. This means that the project's point of departure in the field's questions about play and reading methods has been able to be intertwined with the research's knowledge of the prerequisites and conditions for implementing evidence-based methods. The main focus of early intervention with the support of evidence-based methods is that it should produce benefits for the children. This requires an implementation process where teachers receive training, they have time for reflection and receive support through coaching. The project has developed a 3-step model includes these elements. The model is further used for continued development of the methods within the local organisations. The children's progress through increased play with peers as well as increased vocabulary knowledge and storytelling ability shows that a true partnership between practice and research guarantees a continued curiosity within research to seek the questions that are of relevance for practitioners, take support from research results, meet on methodological issues and in collaboration carry out culturally adapted interventions.

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# IN SEARCH FOR SIGNIFICANCE: THE CHANGE LABORATORY INTERVENTIONS WITH ADOLESCENT STUDENTS

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## ABSTRACT

*Our research project, In Search for Significance: Fostering movement across the six worlds of adolescents, aimed to identify and test ways in which adolescents can find and cultivate significance in their lives, understood as commitments and actions that connect the adolescents' personal interests with activities and projects for a just and equitable world. The research project draws on cultural-historical activity theory and the model of adolescents' different worlds. The project was implemented with the help of the Change Laboratory intervention method. In the research project, 32 eighth-grade students from two comprehensive schools in Finland worked on long-term projects with the support of researchers, school staff, and external experts during two school years. The Change Laboratory is a method for participatory analysis and design based on the cultural-historical activity theory and the theory of expansive learning. The Change Laboratory sessions were conducted within regular school hours, but the students selected, designed, and implemented the topics, contents, and means of the 11 projects. The data has been analyzed with qualitative analysis methods. Adolescents can plan and carry out challenging projects significant to themselves and to the broader society. Allowing students to create and lead their own projects has important potential for developing teaching and learning and students' transformative agency. Change Laboratories promoted a sustained search for significance among adolescents in the school context. In an age of widespread alienation, models such as this are of utmost importance.*

## INTRODUCTION

Too rarely adolescents have the opportunity to reflect, discuss, and work on issues that are significant to themselves at school. Our research project, *In Search for Significance: Fostering Movement across the Six Worlds of Adolescents*, aimed to identify and test ways in which adolescents can find and cultivate significance in their lives, understood as commitments and actions that connect the adolescents' personal interests with activities and projects for a just and equitable world.

The research project stemmed from the important message of the anthropologist Scott Atran (April 23, 2015), for decision makers and public opinion leaders, how to support youth to find meaningful and interesting issues in their lives. Atran condensed his message into three recommendations. First, we should offer youth something that makes them dream, of a life of significance. Second, we should offer youth a positive personal dream, with a concrete chance of realization. Third, we should offer youth the chance to create their own local initiatives.

Crucial question is how can a life of significance be fostered among youth? In our research project, we put the adolescents in the position of agents actually redesigning their activities. This means authorizing the adolescents' perspectives (Cook-Sather, 2002) by inviting them to become authors of their lives. This was accomplished with the help of two Change Laboratory (CL) interventions (Virkkunen & Newhamn, 2013).

The project draws on cultural-historical activity theory, the theory of expansive learning (Engeström, 1987/2015), and an expanded model of adolescents' multiple worlds (Phelan et al., 1998). We recognized three relevant additional worlds, namely digital, civic, and future activity. In this project, the worlds of adolescents are understood as dynamic activity systems. (Figure1).

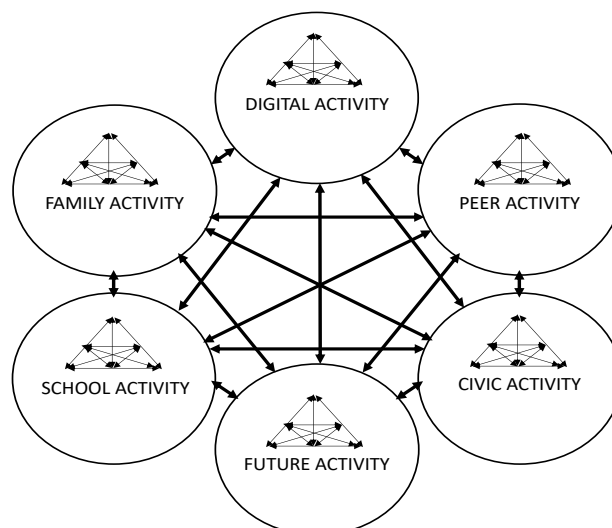


Figure 1. Adolescents' six worlds as spheres of activity (Engeström et al., 2022)

An activity system is a central concept in cultural-historical activity theory (Engeström, 1987/2015), widely used in empirical analyses in various cultural settings. It calls attention to the object of the activity as its driving force and the mediating instruments, community, rules, and division of labor in their interplay and contradictions. The project focused on the search for significance, understood as a potentially expansive and transformative learning process, and seek to answer the following research questions:

1. What kinds of individual and collective trajectories of development emerge when adolescents envision and put in practice local initiatives that give significance to their lives?
2. Which instruments are effective in facilitating movement across the six activity spheres of the adolescents in search for significance?
3. In which ways does the Change Laboratory method need to be adjusted and further developed to allow the adolescents to become authors of their own lives?

The project's novelty and added value for educational research consisted in the following facets: (a) Phelan's model of adolescents' worlds is expanded, to include the spheres of digital, civic, and future activity; (b) instead of static worlds, adolescent lives are analyzed as dynamic activity systems with multiple interconnections and systemic contradictions; (c) focus is shifted from transitions to transformations, actual local initiatives for new activity; transitions across the spheres are motivated by this transformative quest; (d) the Change Laboratory is for the first time reconfigured to make adolescents the central agents of change.

## **CONTEXT, INTERVENTION, AND DATA**

This study was conducted in two big cities in Finland. We invited eighth-grade students of two comprehensive schools to work on projects chosen and shaped by themselves, with the support of researchers, school staff members, and external professionals. This was accomplished by means of two Change Laboratory (CL) interventions over the school years 2020-21 and 2021-22

Building on the methodology of formative interventions (Engeström et al., 2014), the research project used the CL method to enhance adolescents' search for significance in a school setting (Sannino et al., 2016). The CL is a method for participatory analysis and design based on cultural-historical activity theory and the theory of expansive learning (Sannino & Engeström, 2017). Since 1995 it has been used worldwide in educational institutions, workplaces, and communities to generate bottom-up solutions to challenging problems and complex transformations (e.g., Sannino & Engeström, 2017). Typically, CL consists of 6 to 12 weekly sessions with one or more follow-up sessions. Successful CLs lead to outcomes that cannot be fully anticipated by the interventionists (Engeström et al., 2013).

After the cities granted us permission to conduct studies, the principals of the schools helped us to recruit participants. We informed the principals that the participants

should be eighth-grade students who represent the typical, heterogeneous population of their school. We visited both schools several times, informing students about the research project and meeting potential participants. Consent was obtained from the students and their guardians. During our visits, the students produced posters in which they elaborated on the strengths and challenges in their different worlds.

Altogether, 32 eighth graders voluntarily joined our research project and were willing to work on issues important to themselves. The CL sessions were conducted within regular school hours and in a classroom space – but the 11 projects' topics, contents, and means were selected, designed, and implemented by the students (Table 1) without the constraints of the regular curriculum and the pressures of testing and grading. The aim was to facilitate a process in which the students could identify, select, and work on an object that they find significant, not only individually but also for others and society.

The planning and conducting of the research were done in close collaboration with school staff, including regular meetings with the steering groups. Several student projects collaborated with other students and school staff. External experts supported students' projects whenever needed. During the final public closing events, principals, administration representatives, and politicians delivered speeches and provided feedback on the students' project presentations.



Table 1. Titles, topics, and products of students' projects.

Name of the project	Topic of the project	Product of the project
<i>Change Laboratory 1</i>		
Anguis	Learning to code a game	A new version of the snake game, called Anguis
Small action, big world	How do positive and negative words and actions affect other people?	A booklet and posters
K-pop	The meaning of music, especially K-pop, for people	A questionnaire and a presentation on K-pop
Everyone should be accepted as one is	Equality, bullying, and mutual acceptance	A documentary film.
Brotherhood of Steel (BOS)	A tabletop role-playing game that combines history and science fiction; in the game, you have a possibility to either be yourself or whoever you want	A tabletop role playing game.
<i>Change Laboratory 2</i>		
Recess	Developing recesses	Theme recesses, homework recess, proposal for having an afternoon snack at school, benches, and trash bins to the schoolyard.
Podcast	A video podcast about technology	One episode of a video podcast
Bringing forth adolescents' voices	Three different sub projects: - A board game with the theme 'life as an adolescent' - How to make the school a nicer place? - Writing about the pressures and challenges adolescents face at school	A board game for adolescents with the theme 'life as an adolescent'  A questionnaire and a presentation based on it.  Text about school life
Marvel-poster	Designing and producing a poster of their favourite Marvel superheroes	Marvel poster
Gang hoodie	Designing and implementing of a gang hoodie	The gang's own hoodie
"Turpakäräjät" = Class council meetings	- Analyzing and modeling the activity system of the class - Constructing the class council meeting for bringing up students' own initiatives	Modeling of the activity system  Class council meeting called "Turpakäräjät"

In this research project, we collected an extensive and rich data set, which comprises diverse sources, including initial interviews with students, school staff, and school partners, recordings of CL sessions, follow-up sessions, and public closing events, and follow-up interviews with students, school staff, and external professionals. Additionally, the data includes materials produced in CL sessions, for instance, models of their activity and products produced in students' projects.

Various analysis methods, such as the method of discursive manifestations of contradictions (Sannino & Engeström, 2011), transformative agency by double stimulation (Sannino, 2022), expansive learning actions (Engeström et al., 2013), and de-encapsulation actions (Engeström et al., 2023a), have been applied to analyse the collected data. The application of these analysis methods has provided valuable insights into the dynamics and processes that emerged in the CL sessions.

## FINDINGS

In the research project, 32 students produced 11 projects on topics they found significant to themselves as shown in Table 1. The scope of the topics and final products was quite diverse, ranging from coding a game, designing a Marvel poster, and a gang hoodie, to creating a booklet, a documentary film and organizing class council meetings. The essential point was that students were the owners of the process and worked as central agents in their projects: they decided the topic, means, and the final products of their projects. The Excerpt 1, describes the experience of one student in CL intervention.

### Excerpt 1

*We were able to do everything with much more freedom and broader. We were allowed to do things we like and that we considered important.*

[Student, final interview]

The students' projects highlighted two central topics of tension in adolescents' lives: those related to school and peer relations. In CL 1, the overlapping theme of the projects was related to issues of equality, bullying, and treatment of other people. In CL 2, the projects' topics focused more on issues related to school practices and giving voice to adolescents. In the following sections, we present the findings of our research projects based on published papers.

## Hybridisation of adolescents' six worlds

In this study, we developed tools for identifying strengths and pressures in adolescents' different worlds. A poster of my worlds (Figure 2) and an interview form can be used with the adolescents to reflect and elaborate on strengths and pressures related to their worlds (Engeström et al., 2022). These practical tools help identify significant and relevant issues for adolescents.

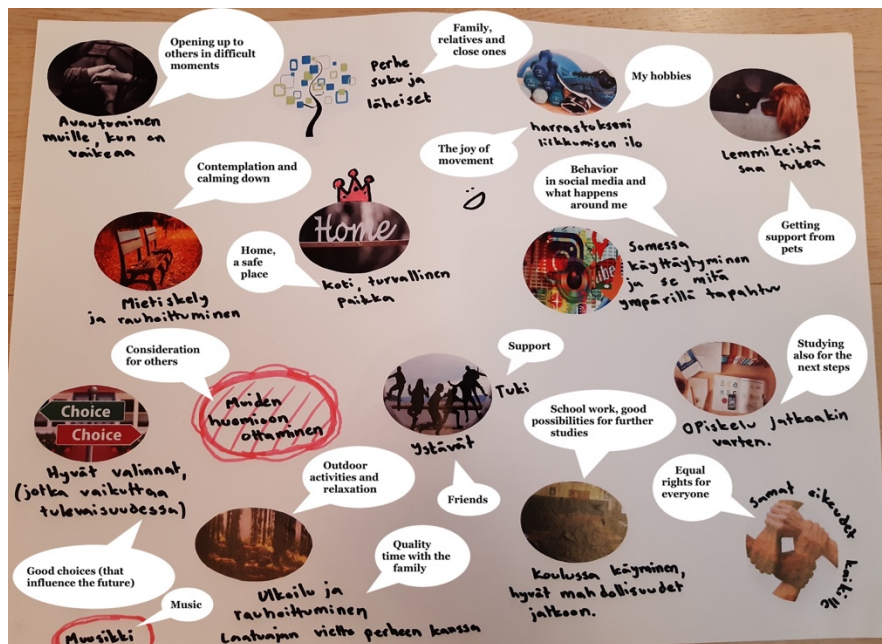


Figure 2. Example of one student's poster of my worlds.

Our analysis of the hybridisation of adolescents' worlds as a source of developmental tensions (Engeström et al., 2022) show that adolescents live in many interconnected worlds. Challenges related to these worlds and their interconnections in adolescents' search for significance may often be ignored. The school is the most important source and host of manifestations of contradictions (Figure 3). These tensions should be turned into drivers and resources of joint elaboration and expansive learning. Our findings invite the school to become involved in collaborative efforts to address the sources of tensions and transform schooling practices accordingly.

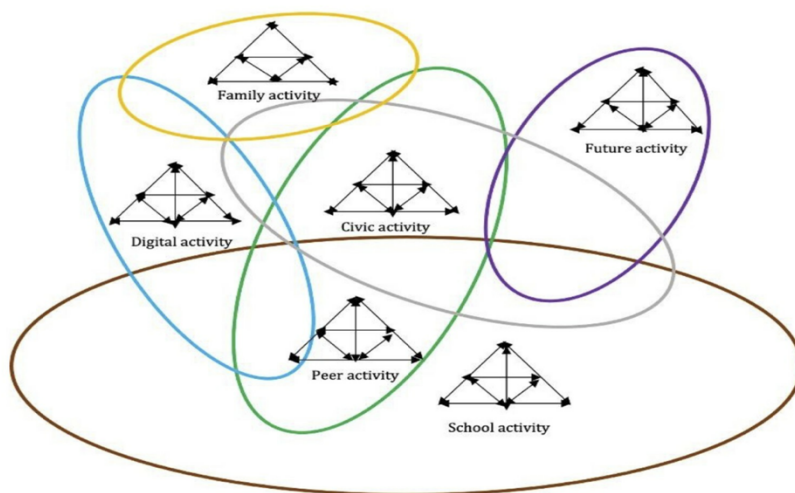


Figure 3. Overview of the hybridisation of adolescents' worlds in the discursive manifestations of contradictions. (Engeström et al., 2022)

### Learning by expanding in Change Laboratories

We found strong evidence of adolescents' potential for systemic and theoretical thinking, as well as executing long-lasting projects that are significant to both themselves and the wider society (Tapola-Haapala et al., 2023a; 2023b). This should not be underestimated. In the CL interventions, students modeled and analyzed their classroom activity, project activities and developed solutions with the help of the triangular model of the activity system (Figure 4). The model consists of three major components; the subject (individual or group), the object on which the subject works and is driven by, and the instruments employed to transform the object (Engeström, 2022).

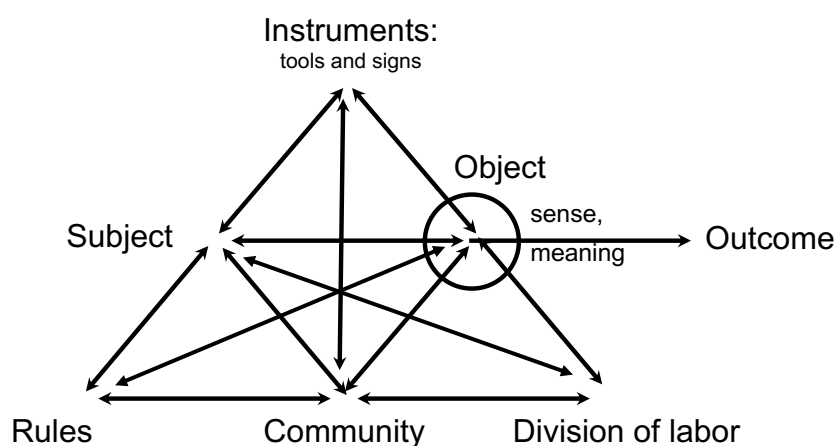


Figure 4. The dynamic structure of an activity system (Engeström, 2015, p. 63)

Modeling the activity made visible, for instance, what the object of analysed activity system is and what the outcome of it will be. Who is or are the subjects involved? What kind of rules do we have, and what is the division of labor? These analyses supported students' projects.

To our knowledge, these two Change Laboratories were the first to have adolescents as the primary participants. We found that expansive learning actions (Figure 5) could be identified also in these Change Laboratories (Tapola-Haapala et al., 2023a).

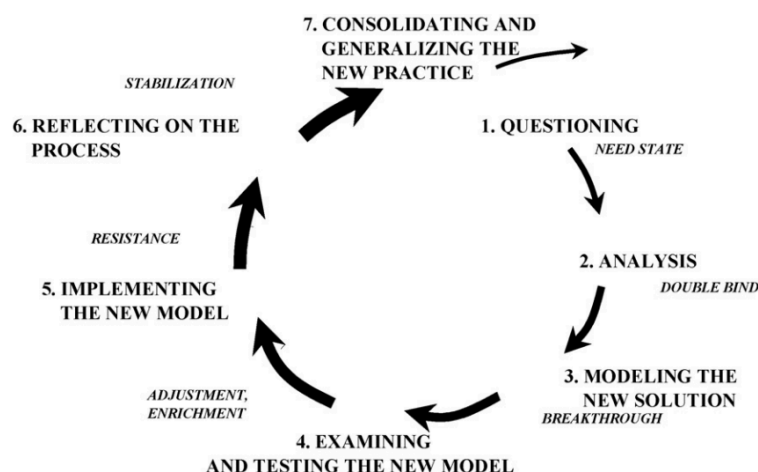


Figure 5. Expansive learning cycle (Engeström, 1999).

In the Documentary film project (CL 1), we identified six types of expansive learning actions, with *consolidating and generalizing the new practice* being the missing type of learning action. In the Class Council Project (CL 2), all the known seven types of expansive learning actions were identified. As typically observed in previous research, the learning actions did not follow a completely straightforward path, but rather adhered to the expansive learning cycle. Additionally, the same type of learning actions could occur in different phases of the cycle. During the class council meetings, initiatives related to different topics were discussed, potentially leading to new cycles of expansive learning.

However, it is essential to consider some critical questions for future discussions. Is it sufficient to identify expansive learning actions from an intervention aimed at generating expansive learning? How should the actions of the researcher-interventionists be taken into account in the analysis? We found that the leading learning action was a useful analytical tool for understanding expansive learning processes - but should there be a stricter methodology for identifying them?

## **Finding life beyond classroom walls**

In this study, we examined the ways in which students initiated and enacted steps to break out of the encapsulated classroom and school while working on their projects (Engeström et al., 2023a). We built an analytical framework to investigate students expansive de-encapsulation actions using three dimensions: 1) the individual or collective nature of the de-encapsulation efforts; 2) the direction of the movement, and 3) the composition of the movement, and observed that it worked well. The findings of our analysis reveal a wide variation of de-encapsulation actions in the four projects. None of the four project groups was unable or unwilling to engage in de-encapsulation. This indicates that there is a broad spectrum of possible student-led projects that can, in a variety of ways, involve and nourish actions of expansive de-encapsulation.

According to our research findings, we strongly advocate for the recognition and support of students' efforts in de-encapsulation. In this study, student-initiated de-encapsulation seemed to be a long journey that initially emerged as small steps and modest initiatives. However, as was found in our study, these small steps and modest initiatives generate sea change when they come together and begin to cross-fertilize. Allowing students to create their own projects has strong potential for opening up the school, developing students' opportunities to influence issues significant to themselves and the wider society, and creating partnerships with progressive actors outside the school.

## **From Future Orientation to Future making: Towards adolescents Transformative agency**

This study of ours (Engeström et al., 2023b) built on the theory of transformative agency by double stimulation (TADS). With the help of TADS process (Sannino, 2022), we analyzed five students' projects produced in CL 1 as an effort to move from mental future orientation to practical future making. The findings show and describe in detail how the CL intervention supported students' transformative agency by double stimulation. Interesting was that the conflict of motives and the creation of the second stimulus emerged as the most critical and productive steps. Sannino's model (2022) worked well as a framework in our analysis.

The key message of our study is that it is time to make the difficult but necessary shift from studying young people's future orientations as private mental phenomena to fostering and analyzing future-making as material public actions that generate use value and have impact beyond the individual. This shift demands a methodologically sound approach. It involves developing and implementing an interventionist methodology that is carefully thought out (Engeström et al., 2014). In our research project, we were able to effectively use the Change Laboratory intervention method with 14 to 15-year-old adolescents. However, this methodological approach requires further development in the future. We are confident that this approach is a productive way to move forward towards fostering adolescents' transformative agency.

## Current research

As previously mentioned, we have collected extensive and rich data during this research project. Our research group is currently concentrating on the following studies utilizing the data presented in this paper. We are investigating the concept of power, specifically on the power of students, and examining how two processes, agency and power, are related in Change Laboratories for adolescents. The second author is studying in her doctoral thesis what happens when adolescent students gain power through object-oriented collective activity. The research aims to explore the concept of object-related power as a productive emancipatory force, which is often hidden, unrecognized, and suppressed yet still generated in various ways (Sannino, 2023).

The third author investigates third space learning in the Change Laboratory intervention, in which adolescent students developed and played a fantasy role-playing game. As a group led by the third author, we are planning a study that examines how adolescents used activity system models (presented in Figure 4) in their projects to analyse their activity and to formulate new solutions. For example, one group analysed and modelled their class activity and after that the group planned class council meetings to have more influence in school.

## Conclusion and discussion

Students' own interests still seem to be hidden and unrecognized resources in the school. Adolescents students have much more potential than may not commonly be noticed at school. The school can initiate and support activities that bring students' potential and their own interests to the fore. Our successful implementation of Change Laboratory with adolescent students within a school setting during regular school hours is an important indication of the potential of schools to become a base and resource center for learning with a much broader scope than the traditional curriculum (Engeström et al., 2023b).

In Change Laboratories, the participants' need to influence and make an impact became visible. Change Laboratory supported students' transformative agency and generated expansive learning. The participants' reflections and experiences of the Change Laboratory were positive and encouraging, giving new insights into the potentials of school. Change Laboratory intervention method worked well for promoting a sustained search for significance among adolescents in the school context. In an age of widespread alienation models such as this are of utmost importance.

*"Well, maybe along this project, I have somehow gained more hope about perhaps being able to impact things in some ways. And even if it is not big impact, it is still impact."*

[Student, final interview]



## Acknowledgements

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# A consideration about the relationship between Inquiry-Based Learning and Subject-Based Learning by statistical analysis

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## ABSTRACT

*Inquiry-based learning aligns broadly with a pluralistic approach, as it identifies problems requiring solutions and employs transdisciplinary methods to address various common issues associated with the uncertainties of the world. However, the connection between the skills and knowledge acquired through inquiry-based learning and the cognitive abilities gained through subject-based learning remains unclear. Teachers face the dilemma of questioning whether actively promoting inquiry-based learning during integrated study, cross-subject, learning time leads to improvements in academic ability. In response to these questions, this research utilized data from a national questionnaire survey conducted by a local board of education that promotes inquiry-based learning under the concept of Education for Sustainable Development (ESD). The study investigated the correlation between academic ability and inquiry-based learning, as well as non-cognitive abilities through data analysis. The results indicate that a moderate correlation emerges between inquiry-based learning and non-cognitive abilities. The correlation between inquiry-based learning and academic proficiency is not robust. However, it would be inaccurate to assert that the relationship is entirely inconsequential, even when considering nationwide data.*

## Introduction

Inquiry-based learning involves the systematic exploration of topics through information acquisition, investigative pursuits, and active engagement in addressing societal challenges. Recently, schools have incorporated inquiry-based learning into both the curriculum and extracurricular activities. In Japan, the establishment of integrated study periods occurred with the revision of the Curriculum Guidelines, the national standards for school curricula, in 1998. These study periods have provided a platform for teaching and learning methods that promote task-based inquiry learning, problem-solving, and participatory learning, integral to the pluralistic approaches of Education for Sustainable Development (ESD).

In the last five years, integrated study periods have evolved into project-based, inquiry-based learning sessions. Referred to as "Kadaikenkyu," translating to inquiry-based research, these subject demands 105-to-205-unit hours per year in upper secondary school. Students are empowered to pursue individual, or group

scientific research based on their interests, involving experiments, observations, and fieldwork. In the past five years, especially in upper secondary school, the central theme of this inquiry-based research has predominantly focused on the 17 targets of the Sustainable Development Goals (SDGs).

Nevertheless, the correlation between the abilities acquired through inquiry-based learning and the "knowledge and skills" and "cognitive abilities" obtained through subject-based learning remains unclear. This presents a dilemma for teachers, raising questions such as, "Even if you actively promote inquiry-based learning in integrated study (cross-subject) learning time, will it lead to improvements in academic ability?" To address these questions, this presentation draws on data from a national questionnaire survey conducted by a local board of education that promotes inquiry-based learning under the concept of ESD. The study investigates the correlation between academic ability and inquiry-based learning, as well as non-cognitive abilities through data analysis.

## **Literature Review**

Previous literature has already highlighted the effectiveness of inquiry-based learning.

Baraquia (2018) conducted a case study exploring students' perceptions of the incorporation of Interdisciplinary Contextualization and Inquiry-Based Approach. Qualitative analysis revealed that student-participants unanimously agreed that they gained more knowledge through this approach. Students perceived that incorporating Interdisciplinary Contextualization and Inquiry-Based Approach facilitates connecting situations and problems to other learning areas, fosters critical thinking, deepens understanding of content, and provides opportunities for interaction and real-world activities.

Ariza et al. (2020) drew on the meta-theory of Critical Realism to establish a theoretical basis for the pedagogical approach of Socio-Scientific Inquiry-Based Learning (SSIBL) in supporting Education for Environmental Citizenship (EEC). The argument emphasized the criteria for inducting citizens in decision-making, including relevant transdisciplinary knowledge, a values orientation toward a sustainable world, and confidence for socio-political action. Ariza (2020) presented four exemplar cases from different European countries (the Netherlands, Spain, the UK, and Cyprus) to illustrate how SSIBL has been operationalized in various national contexts through specific teacher professional development.

Hamdan Alghamdi and Wai Si El-Hassan (2020) focused on pre-service teachers' experience with and response to using inquiry-based learning (IBL) to teach sustainability. In summary, pre-service teachers provided positive feedback on their IBL experience, offering valuable recommendations for richer discussions on IBL pedagogical considerations in the Saudi educational context. These recommendations, emerging from educators in training, contribute to discussions on incorporating IBL into teacher education, aligning IBL with Saudi cultural and religious practices, and communicating anthropogenic impact to Saudi citizens. Such

initiatives align with Education for Sustainability, emphasizing interdisciplinary contextualization and inquiry-based learning.

Nicolás-Castellano et al. (2023) proposed a professional development plan aiming for lasting and coherent change in science education, transitioning from conventional teaching to guided inquiry-based teaching across the entire primary stage. According to the data obtained, the plan designed to achieve the didactic change from traditional science teaching to guided inquiry-based teaching was successful in the school where it was developed.

While the mentioned research demonstrates the practical application and effectiveness of science and socio-scientific inquiry-based learning, there is a notable absence of discussion on how students' abilities acquired through inquiry-based learning relate to the "knowledge and skills" and "cognitive abilities" obtained through subject-based learning.

## Research question

The aim of this study is to address educators' inquiries, specifically questioning whether actively promoting inquiry-based learning during integrated study (cross-subject) learning periods results in improvements in academic proficiency. The research delves into the correlation between academic ability and inquiry-based learning, as well as the impact on non-cognitive abilities through rigorous data analysis.

Three primary research questions are formulated:

1. Does the implementation of inquiry-based learning correlate with improvements in academic proficiency?
2. Can it be asserted accurately that "actively advocating for experiential activities and inquiry-based learning does not yield advancements in academic ability"?
3. Do experiential learning and inquiry-based learning significantly contribute to the enhancement of non-cognitive skills?

To address these research questions, the study proposes the following hypotheses: H1: Inquiry-based learning significantly contributes to the enhancement of non-cognitive skills. H2: Inquiry-based learning leads to advancements in academic ability.

## Research Design

### *Background of the targeted city board of education*

Since 2005, numerous local educational authorities and schools in Japan have been advocating for inquiry-based learning within the framework of Education for Sustainable Development (ESD). The themes of inquiry-based learning typically encompass local sustainability issues, environmental considerations, dynamics of climate change, patterns of sustainable consumption, strategies for disaster prevention, and considerations of human rights.

Throughout the Decade of Education for Sustainable Development (2005-2014), strongly endorsed by the Japanese government, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) initiated the Basic Plan for the Promotion of Education in 2008. This promotional plan positioned schools within the UNESCO Associated Schools Network (ASPnet) as focal points for advancing ESD (Ichinose 2017).

This study concentrates its focus on A City, which, along with other cities, boasts a 100% UNESCO Associated School membership rate and has been an early adopter of curriculum initiatives to promote ESD since 2008.

Table1: Enhancement process of ESD in A City Board of Education

	Items adopted in response to developments in the community	Items adopted in response to domestic developments	Items adopted in response to global developments
FY2009		Introduction of ASPnet schools	Start of the Decade of Education for Sustainable Development (DESD) in 2005
FY2010	March 11, 2011, Great East Japan Earthquake		
FY2011	Disaster prevention education	ASPnet schools Guidelines	
FY2012		Competencies/abilities, attitudes	
FY2013		Global human-resources development	Looking back on the Decade of Education for Sustainable Development (DESD)
FY2014			Sendai Framework for Disaster Risk Reduction 2015-2030 adopted in the Third UN World Conference on Disaster Risk Reduction
FY2015			Global Action Program, 2015
FY2016	Marine Education	Curriculum Management	
FY2017		Active Learning	Whole-school approach
FY2018		Inquiry-based Learning	Sustainable Development Goals (SDGs)
FY2019			Whole-school approach
FY2020		Evaluation for Transformative Action	ESD for 2030

FY2021		Utilisation of ICT in the response to COVID19	
FY2022			Climate Change Education

Source: Ichinose (2022)

### Research methods

This study utilizes both national-level data from the National Academic Ability Proficiency and Learning Status Survey (NAPLSS) and the results of a local-level survey. NAPLSS is an annual academic proficiency survey conducted by the Ministry of Education, Culture, Sports, Science, and Technology, aiming to analyse the academic capabilities and learning dynamics of all students in the final grades (6th grade in elementary school and 3rd grade in lower secondary school) throughout Japan. The survey includes assessments in Japanese language and mathematics, along with a variety of inquiries about students' activities. For our analysis, a 10% random sample data set (approximately 100,000 participants) was obtained from MEXT. The survey comprises scholastic ability tests in national language and math, accompanied by a questionnaire for students to complete, containing around 70

となり町の中学校のホームページにあった情報

私たちの取り組みの成果


参加した生徒数 86人

取り組み期間 14日間

家庭での二酸化炭素削減量の合計 300 kg

$$\left( \begin{array}{l} \text{二酸化炭素} \\ 300 \text{ kg} \end{array} \right) = \left( \begin{array}{l} \text{杉の木約 20 本が 1 年間に} \\ \text{吸収する二酸化炭素の量} \end{array} \right)$$

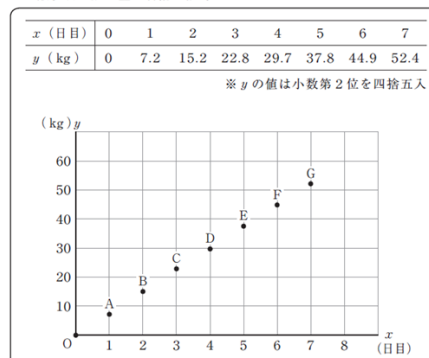
13 気候変動に具体的な対策を



items.

The National Academic Proficiency and Learning Status Survey (NAPLSS) Academic Proficiency Test Sample Lower Secondary mathematics in 2022

二酸化炭素削減量の合計の記録



From the comprehensive survey dataset, specific questionnaire items related to inquiry learning, academic proficiency, and non-cognitive capabilities were carefully selected. Subsequently, a correlation analysis was conducted, incorporating both nationwide data and data from the Board of Education in A City.

The surveyed cohort included all 6th-grade elementary school students (13 schools: 358 students) and all 3rd-grade lower secondary school students (10 schools: 396 students) from 2022, referencing data from 2021 and 2019. (In 2020, NAPLSS was not conducted due to the impact of COVID-19). The survey in A City was independently conducted by the A City Board of Education with the support of Miyagi University of Education and released in April 2023.

Example Questions (grade 6) related to the non-cognitive capabilities is as follows.

STQ\_007: Do you think you have good qualities?  
STQ\_009: Do you have dreams or goals for the future?



STQ\_010: Do you try to accomplish what you decide to do?  
 STQ\_011: Do you take on challenges without fear of failure, even if they are difficult?  
 STQ\_013: Do you think bullying is wrong for any reason?  
 STQ\_015: Do you want to be a person who is helpful to others?  
 STQ\_016: Do you think going to school is fun?  
 STQ\_030: Do you ever think about what you should do to improve your community or society?

\*STQ: Identifying code of NAPLSS

Example Questions (grade 6) related to the Inquiry based learning is as follows.

STQ\_0038: In the classes you took up to fifth grade, when you had the opportunity to present your ideas, did you use materials, sentences, and the structure of your talk to convey your ideas well?  
 STQ\_0039: In the classes you took up to 5th grade, did you think and work on your own to solve problems?  
 STQ\_0043: Are you able to deepen and expand your thinking through discussion activities with your classmates?  
 STQ\_0045: During integrated study time, do you engage in learning activities such as setting your own assignments, gathering and organizing information, and presenting what you have researched?  
 STQ\_0046: In your class, do you have discussions in class meetings to improve class life and decide on solutions by taking advantage of each other's opinions?  
 STQ\_0047: Are you currently deciding what you should strive for and working on it by making use of the discussions in class during class activities?

## Research findings

Following is the results investigates the correlation between academic ability and inquiry-based learning, as well as non-cognitive abilities through data analysis.

Table2: Affirmative response rate of Inquiry-based learning

	Grade	A City Board of Education	Nation wide
During integrated study time, do you engage in learning activities such as setting your own assignments, gathering and organizing information, and presenting what you have researched?	primary school 6 <sup>th</sup> grade	80.2%	72.7%
	Lower Secondary 3 <sup>rd</sup> grade	87.5%	72.1%

The question related to inquiry-based learning was as follows: "During integrated study time, do you engage in learning activities such as setting your own assignments, gathering and organizing information, and presenting what you have researched?" In primary schools under the jurisdiction of the A City Board of Education, the affirmative response rate was 80.2% (compared to the nationwide

average of 72.7%), indicating a surplus of 7.5 points. At the junior high school level, the score reached 87.5% (compared to the nationwide average of 72.1%), demonstrating a significant 15.4-point deviation from the national mean. This underscores the proactive commitment of the A Board of Education to the integration of inquiry-based learning since the initiation of the Decade of Education for Sustainable Development in 2005.

In terms of the correlation between inquiry-based learning and non-cognitive abilities, A moderate correlation is evident between inquiry-based learning and non-cognitive abilities, notably robust for non-cognitive capacity (Primary school  $r = 0.65$ , junior high school  $r = 0.66$ ), as depicted in the table3.

Table 3: Correlation of Inquiry based learning and non-cognitive skills.

Correlation   r	Primary 6 <sup>th</sup> grade			Lower Secondary 3 <sup>rd</sup> grade		
	2022	2021	2019	2022	2021	2019
Correlation between Inquiry based learning and National Language (Japanese)	$r = 0.34$	0.12	0.24	0.27	0.23	0.18
Correlation between Inquiry based learning and Math	0.27	0.11	0.22	0.21	0.33	0.18
Correlation between Inquiry based learning and non-cognitive skills	0.65	0.56	0.64	0.57	0.66	0.61

At the national level, a similar pattern is observed, with a moderate correlation between inquiry-based learning and non-cognitive abilities (Primary school  $r = 0.64$ , junior high school  $r = 0.64$ ).

The primary hypothesis posits that inquiry-based learning significantly contributes to the enhancement of non-cognitive skills (H1). Nationally, there is a moderate correlation that aligns with established theoretical paradigms. However, schools under the jurisdiction of the A Board of Education did not attain high scores in self-efficacy (Primary - 2.8, Secondary - 6.6) and GRIT (Primary - 0.7, Secondary - 3.4) compared to the national average concerning non-cognitive abilities.

The secondary hypothesis suggests that inquiry-based learning leads to advancements in academic ability (H2). In terms of the correlation with subject-specific academic proficiency, no substantial correlation is found with mathematics, while a slightly elevated correlation is noted with Japanese. Although the correlation between inquiry-based learning and academic proficiency is not robust, it is inaccurate to assert that the relationship is entirely inconsequential, even on a nationwide scale. This moderate correlation nationally aligns with the conventional and established theory suggesting that inquiry-based learning contributes to the recognition of non-cognitive abilities.

## DISCUSSION

Bentham (2013) emphasized that the pedagogy of education for sustainable development (ESD) should foster action competence and adopt learning methods that encourage community and social development engagement. This entails the integration of active learning strategies, such as environmental impact assessments, learner-centred methodologies, and participatory and collaborative learning activities. Inquiry based approaches is core elements to address various common issues associated with the uncertainties of the world. To date, various local educational authorities and schools in Japan have advocated for inquiry-based learning within the framework of Education for Sustainable Development (ESD).

Within the national language subject context, teachers involve students in linguistic expression activities, including listening, interviews, and presentations related to research pursuits. This type of learning contributes to the observed correlation. However, the reduced correlation between exploratory learning and mathematics can be attributed to the limited activation of numerical processing abilities among elementary and lower secondary school students. This research findings suggested that it is crucial for educators to actively motivate the integration of the subject's knowledge and skills into inquiry-based learning.

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# BLENDING LEARNING IN DESIGN-BASED EDUCATION: INSPIRING TEMPLATES THAT SUPPORT TEACHERS AND STAFF

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## ABSTRACT

*NHL Stenden's educational concept of Design-Based Education (DBE) is a pedagogical approach that entails collaboration between students, teachers, and workplace experts to solve real-life challenges and learn from workplace practices. At NHL Stenden, students work on projects. During and after these projects, students reflect on their work and the extent to which the designed products and the process prove mastery of the learning outcomes and criteria set for the study program. However, physical facilities can limit face-to-face learning capacity, making it challenging to implement DBE. To address this issue, NHL Stenden University of Applied Sciences developed templates within the Learning Management System (LMS) to support teachers in designing blended DBE courses, combining online and face-to-face learning processes. Four template prototypes were developed, each focusing on a different approach to learning within DBE. The templates allow teachers to add or delete any items they wish. The four templates sparked awareness of various approaches to learning in general and blended learning in particular and function as a resource and inspiration for teachers. However, to blend DBE effectively, additional tooling is needed. Besides, the templates within Bb Ultra have contributed to finding common ground between people with technical, organizational, and pedagogical backgrounds. They value each other's expertise and are ready to proceed.*

## INTRODUCTION

NHL Stenden's educational concept of Design-Based Education (DBE) (Geitz & de Geus, 2019) is a pedagogical approach that entails collaboration between students, teachers, and workplace experts to solve real-life challenges and learn from workplace practices (Bakker & Sinia, 2019). These activities occur in 'Ateliers' (Sinia & van Diggelen, 2023). Face-to-face interactions among students and between students, teachers, and workplace experts are essential during all six phases of DBE. During and after the work on real-life challenges, students reflect on both their work

and learning process and the extent to which the designed products and the process prove mastery of the learning outcomes and criteria set for the study program, either in writing or orally. These reflections are deemed necessary for students to take charge of their learning processes and for teachers and workplace coaches to monitor that learning process.

In the current post-COVID era, many students value the intensity of personal interactions among peers and with teachers. Over the past year, the number of NHL Stenden study programs that excel nationally has doubled. A downside is that all these activities require adequate rooms, and accommodating all students is a real challenge.

Due to the COVID lockdowns, many more people have become acquainted with the possibility of interacting online. This experience can help to overcome the limitations of the availability of physical facilities. The online activities within an atelier do not need the physical rooms on campus. In this way the online possibilities can extend the activities within an atelier.

NHL Stenden University of Applied Sciences would like to enhance blended learning within the collaborative learning processes during ateliers with students, workplace experts, and teachers. However, different interpretations and expectations of both ‘blend’ and ‘Design-Based Education’ concepts challenge a smooth implementation.

The blended DBE research and development group at NHL Stenden University of Applied Sciences set out to clarify the concept of blended DBE, align communication between different organizational layers, and establish templates within the Learning Management System (LMS) to support teachers and their managers to implement blended Design-Based Education.

## **BLENDED LEARNING IN DESIGN-BASED EDUCATION**

Blended learning is an approach to education that combines traditional face-to-face teaching with online learning activities. At NHL Stenden, the existing learning management system (LMS) was mainly used for informative purposes (Heitink et al., 2016), such as sharing subject-matter content and organizational information. After being on air for over 30 years, the LMS Blackboard was at the end of its life cycle, and a new version of the platform, Blackboard Ultra (Bb Ultra), was selected and implemented in January 2022.

Technically, the migration from the original Blackboard to Bb Ultra ran smoothly and on schedule. During the early phases of implementing Bb Ultra, it became apparent that the differences between the original Blackboard platform and Bb Ultra were significant. The original Blackboard was widely used to store supportive resources for lectures and projects and make them available to students. Blackboard

Ultra intends to facilitate a learning process. Making supportive resources available is still possible, but more features are available to track student activity.

Early in the implementation process, two pedagogical challenges surfaced: the difference between the new LMS's solid linear structure versus DBE's non-linear structure and the pre-set forms of online group work provided by the LMS versus the flexibility for group work desired within DBE. In later phases of implementation, additional challenges became apparent. An example is the possibility of connecting goals to student work, but only the teacher can do so. Because DBE promotes students' responsibility for their progress and students are encouraged to reflect on their learning process regularly, it follows that not the teacher but the students themselves should be able to connect goals to their work in a non-prescriptive way.

To address the pedagogical challenges described above, the blended DBE research and development group conducted a comprehensive literature review, analysed the features of the new LMS, compared features of the LMS with elements of other platforms already under license within the University, followed training sessions for the new LMS, spoke with knowledgeable others to clarify the concepts of both 'blended' and 'Design-Based Education' and monitored how teachers adapted their pedagogies to the possibilities of the new LMS.

Based on the emerging findings and insights, an NHL Stenden definition for blended learning was drawn up during these activities. From the literature studied, Cronjé's (2020) suggestion that a definition of blended learning should include a description of the approach to knowledge (Kurtz & Snowden, 2003), as well as an approach to learning (Cronjé, 2006) and be specific about learning activities that can be facilitated by the platforms and applications available stood out.

Cronjé's (2020) blended learning decision matrix describes four different approaches. The blended DBE research and development group recognized all four within the university's concept of Design-Based Education. This insight resulted in the following rather broad definition of Blended Learning for NHL Stenden: *'Intertwining the physical and online learning environments to optimize and enrich student-centered learning experiences. The blend encompasses a functional use of digital tools to make our education more efficient, rich, and accessible.'*

During the early stages of implementation of the new platform, the Blackboard support team suggested developing a template to help teachers make a start with arranging course content and activities (Botha, 2020). The experience of the Blackboard support team was that providing teachers with an empty space was daunting.

During the support sessions, it became apparent that Design-Based Education is a constructivist approach to learning, whereas, in educational institutions, the support team generally works with objectivist approaches. A complicating factor is that the constructivist approach of Design-Based Education also needs more objectivist approaches (Cronjé, 2006). Not all teachers within NHL Stenden have a



constructivist approach to teaching and training, especially where the transmission of subject matter content is concerned. These teachers are valued for contributing the knowledge students need and can use during the DBE projects. These teachers need different support with arranging the new Blackboard Ultra than teachers responsible for constructivist learning processes.

During the support sessions, the idea surfaced to develop four templates that concur with Cronjé's four approaches to learning instead of one template. Within the blended DBE research and development group, there was consensus to try that. So, to support teachers in translating the broad NHL Stenden definition of blended learning to their practices and support them in their decision-making during the design of blended learning processes, four prototypes for templates were developed, one for each of Cronjé's approaches to learning: Injection, Integration, Construction, and Immersion (Behnen et al., 2023). The injection prototype includes suggestions for designing a self-paced and asynchronous course focusing on existing practices and standard procedures that are repeatable, imaginable, and predictable. This approach strongly concurs with the acquisition of knowledge needed within DBE. The integration prototype includes suggestions for promoting analytical thinking, puzzles, and logical reasoning, essential skills needed for DBE. The construction prototype focuses on how students, teachers, and workplace experts can collaborate to tackle real-life problems with multiple possible answers and support students to learn through doing, experimenting, and making mistakes.

The immersion prototype includes various ways in which students can be coached and supported during internships where students "learn to work" and engage in work-based learning (Mazereeuw, 2022). Figure 1 shows how each of these templates has a specific arrangement of features of the learning management system at its core.

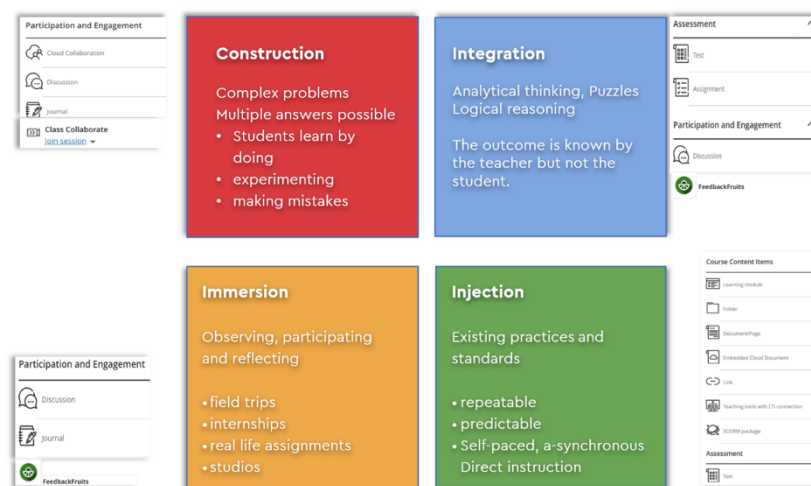



Figure 5 Learning Management System features at the core of each approach to learning

For optimal alignment with DBE, Atelier Blended Learning has made four templates, of which the 'construction' template suits DBE best. A detailed explanation of the templates can be found at: [https://blackboard.nhlstenden.com/bbcswebdav/xid-88626360\\_6](https://blackboard.nhlstenden.com/bbcswebdav/xid-88626360_6)

If you prefer to build from scratch, choose 'empty (no template)' or the Immersion template, which is almost empty. \* 

Choose 'Other' if you want to use a course/organization of your own as a template. Fill in the ID which you can find above the title.

- ☐ Template Construction
- ☐ Template Immersion
- ☐ Template Injection
- ☐ Template Integration
- ☐ Template combination of Construction, Immersion, Injection and Integration
- ☐ Empty (no template)
- ☐ Other

*Figure 6 Teachers at NHL Stenden can choose which template within the new Blackboard Ultra environment suits their course best*

When teachers apply for a new course within the new Blackboard Ultra environment, they are prompted to select one of the four templates, a fifth template that combines all four or an empty canvas, as seen in Figure 2. ICT support staff then create a course accordingly, and teachers can proceed with accommodating the course to their needs.

The templates are not prescriptive; teachers can add and delete any template items. The templates contain links to valuable resources scattered across various SharePoint pages throughout the university, like a database for learning activities, a database with additional tools, library resources, support for academic writing, research facilities, and support for working with and managing portfolios.

## TEACHER PERSPECTIVES ON USING THE TEMPLATES

During the 2022-2023 school year, the university monitored the number of requests for each template prototype and how the teachers used the template to develop their courses.

During the first implementation phase, the spring semester of 2022, the percentage of requests for the construction template was the largest; see also Figure 3. At the end of this semester, an in-depth interview took place with a teacher from the hotel school department. This interview revealed that the templates had inspired the teachers of this department to include online activities that would otherwise not have come to mind.

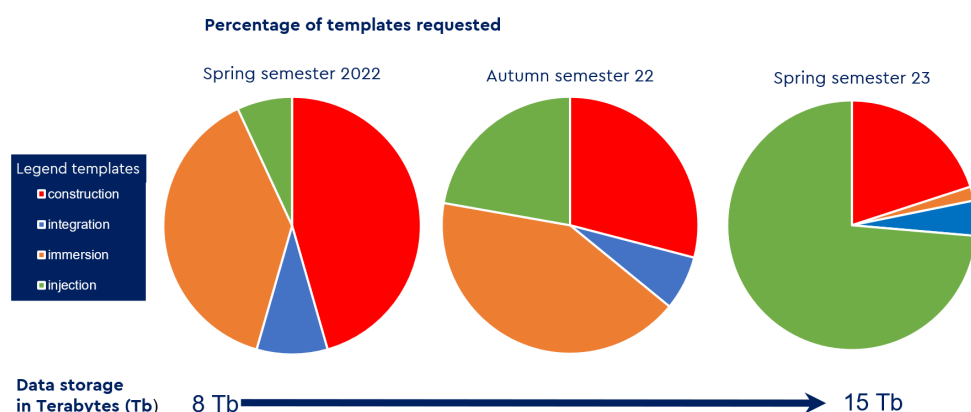


Figure 7 Percentage of templates requested per semester

During the next semester, the number of requests for the construction template stayed steady. However, the demands for other templates increased, resulting in a decrease in the percentage of requests for the construction template. Three more in-depth interviews with teachers from different departments took place. These interviews revealed that the templates are user-friendly, consistent, and easily recognizable and that teachers are happy to find a collection of available resources in one place. One teacher reported that the construction template had helped to identify blind spots in the design of the learning process for students. Another teacher exclaimed happily, ‘*Not everything has to be DBE.*’

A deeper analysis of the autumn 2022 semester, shown in Figure 4, revealed that more courses based on the construction template went live than courses based on the injection template. This left the impression that teachers requesting the construction template were less hesitant to try out the new platform with their students than teachers requesting the injection template.

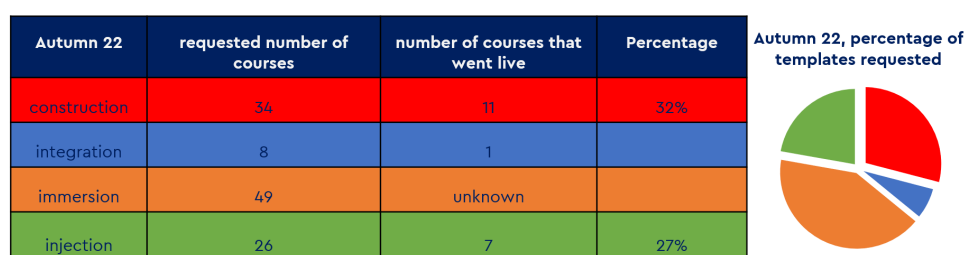


Figure 8 Percentage of courses that went live during the Autumn 2022 semester

In the spring semester of 2023, there was a further decrease in the percentage of requests for the construction template and more than a percentual doubling of requests for the injection template, as shown in the far right pie chart in Figure 3. A

deeper analysis revealed that many teachers who had requested the construction template the year before either worked with a copy of their whole course or made copies within it, making the 2022 activities invisible for the 2023 cohort. In the meantime, the number of teachers requesting an injection template increased, mainly because they had yet to migrate, and support for the original Blackboard would be stopped as of September 2023.

In other words, there was a difference in behaviour between the teachers requesting the various templates. In the spring semester of 2023, there was a decrease in requests for the construction template and more than a doubling of requests for the injection template, as shown in Figure 3. The teachers requesting the injection template waited as long as possible before migrating to the new platform, whereas the teachers who ordered the construction template had already done so. The teachers who requested construction templates seem more proactive in adapting to the new platform.

Figure 4 also shows that only about a third of the requested courses go live. Most of the courses that go live look very different from the template. Often, the remains of the templates dangle at the bottom, invisible to students.

Teachers hardly request empty courses, which concurs with the experiences of the Blackboard support team that empty spaces are daunting for teachers. It is easier to adapt something already present than to start from scratch. Seeing remains of templates dangling at the bottom of a course is not necessarily worrying. Another interpretation can be that the template chosen did what it is supposed to do: help teachers start, guide them to available resources, and give them the freedom to design what works with their students, subject matter content, and activities, both face-to-face and online.

The analysis spotlighted a teacher with a very active and creative attitude toward Design-Based Education. Surprisingly, this teacher had requested multiple courses with the injection template. During the interview, this teacher reported

*“We work with DBE and use the injection template. Students can now work through the subject matter content at their own pace. In this way, we free up time for the highly interactive face-to-face DBE processes.”*

This teacher continued to explain that DBE processes happen in class with supportive materials like scrum boards to monitor the progress of the groups. The first thing students do when they enter the room is collect their board and start a stand-up. In this way, teachers have an instant overview of what the students do in class. The way the board is organized gives teachers visual prompts about which groups might be stuck and which groups might want to dive deeper into the project. This teacher and colleagues are explicit about how they like to blend the learning processes and have made clear choices on what parts of the learning process take place in class and what students can do online. The options in their blend can be described as doing activities with high levels of interactive quality (Roblyer &

Ekhaml, 2000) face-to-face in class and requiring students to do individual activities with low levels of interactive quality online.

## **OVERALL LESSONS LEARNED**

The templates have aided and inspired teachers to design blended DBE courses at NHL Stenden University of Applied Sciences. The templates have been created to be non-prescriptive, allowing teachers to add or delete any items to the template as they wish. Teachers report that the templates have helped identify design gaps in their courses and inspired them to include online activities that they would not have thought otherwise. From the experiences described above, we can draw the following lessons learned:

1. The four templates sparked awareness of different approaches to learning in general and blended learning in particular, and teachers felt acknowledged that ‘not everything has to be DBE.’
2. The injection template prevails with functionalities of Bb Ultra for what it does best: Organizing information and handing in work
3. The construction template functions as a DBE resource for teachers during the design of blended ateliers
4. A-synchronous, self-paced content modules in Bb Ultra free up time for the synchronous interactions in physical rooms that take place during ateliers
5. To blend DBE effectively, additional tooling and support is needed

## **SPIN OFF**

The blended DBE research and development group looks back at an exciting implementation process that paid attention to technical and organizational matters during the migration from the original Blackboard to Bb Ultra and monitored the pedagogical ways teachers adopted a new platform.

Special attention is being paid to the importance of reflection as part of the learning process. The Bb Ultra platform can facilitate reflections as part of assignments. It also can connect goals as described by the institution with assignments. A drawback, however, is that only a teacher can connect these goals with assignments. In contrast, for learning within Design-Based Education, the students must be able to link these goals to the real-life challenges and workplace practices they have encountered. In addition, these reflections do not merely occur within an assignment but overarch multiple challenges and procedures, providing a clearer picture of what students have learned and how they learned it as they proceed.

Often, multiple teachers are accountable for different courses and ateliers within a study program, and it can be challenging to design a coherent program. For teachers to align their efforts, the blended DBE research and development group has developed a Blended learning game for teachers. With this game, teachers can align or even redesign study programs and choose which activities take place face-to-face and which actions take place online. While playing the game, as seen in Figure 5, it becomes clearer what students can learn and to which atelier attention is paid to what learning outcomes.



Figure 9 The blended learning games developed by the blended DBE research and development group

Regarding the offer of learning processes, the above is okay. However, it is not a matter of course that students learn what teachers program. The challenges students work on might trigger progress in learning outcomes other than those the teachers intended. It would be a waste of time for students and teachers not to value this learning.

A DBE canvas has been developed to support students with their challenges that visually combines DBE and a project planning canvas. Figure 6 shows the current version. Students work on their projects in teams of three to five students. Each student's individual learning is collected through reflections that can be assembled in a portfolio.



The next step for students is to connect these reflections to the learning outcomes of their study program. A portfolio can be a suitable place for these connections.

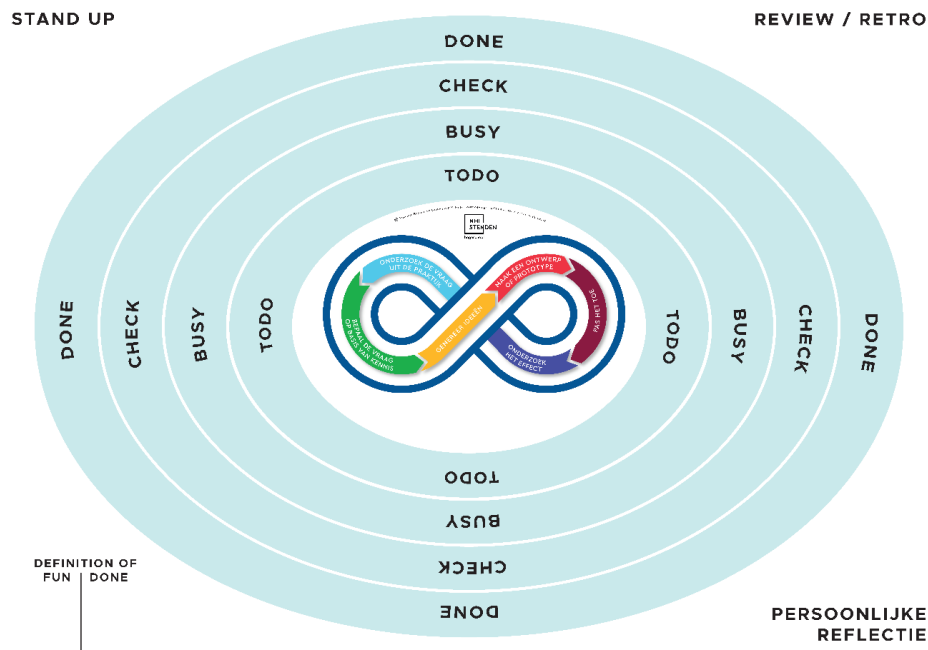


Figure 10 Design-Based Education canvas

So far, we have yet to find an e-portfolio platform that encourages *students* to choose freely which learning outcomes apply to which challenges and practices. In the meantime, we make do with a wide array of provisional tooling based on licensed tools available within the university. What surfaces is that the tooling differs from how students and teachers manage the process. Here, too, the different approaches to learning within our university surface (Cronjé, 2006).

Currently, a tender is being prepared to implement a new e-portfolio platform. Again, teachers are actively invited to engage in the process. Ways of pedagogical thinking come to light of which people responsible for technical and organizational issues are unaware but do influence the selection of design features for the new platform.

The other way around, thinking about the possibilities of a new platform encourages teachers to rethink their ways of working, also keeping the requirements for students' learning processes within Design-Based Education in mind.

It is clear there is still work to do. Explicating the underlying learning approaches can help better understand one another and make clear decisions. A positive outcome of our endeavour with the templates within Bb Ultra is that people with technical, organizational, and pedagogical backgrounds have found common ground,



connected, shared, and valued each other's expertise, and are now ready to proceed together.

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# HOW SHOULD THE ONLINE LEARNING DEVELOPMENT BE ORGANIZED IN VOCATIONAL TEACHER EDUCATION IN ETHIOPIA

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## ABSTRACT

*MOPEDE (Modernizing TVET Pedagogy in Ethiopia) project supports improvement of professional teacher education and inclusion through the integration of state of the art pedagogical and digital solutions as part of curriculum, implementation, and methods in vocational education. The capacity building project is funded by the Finnish Ministry of Foreign Affairs. The project impact is described as follows: Accessibility and quality of VET teacher education is improved and modernized around Ethiopia, and thus, the TVET-sector can fully contribute to the aims emphasized in Ethiopian Education Development Roadmap (EEDR, 2018), framework document of Technical Vocational Education and Training for Sustainable Development (TSDP, 2018), and in the Growth and Transformation Plan of Ethiopia (GTP II, 2016). Project has been jointly created in partnership of two Finnish and one Ethiopian higher education institute.*

*This paper focuses on the managerial and leadership aspects of pedagogical development. During the first half of the project, the focus has been on managing change. Now, the focus is shifting towards sustainability and quality of online learning practices. The main content of the paper is based on information gathering on the distribution of responsibilities from the perspective of good teaching, administration, decision-making and leadership. We highlight the key findings from this stage by using taxonomy derived from Sprague and Watson (1993) by Aggarwal and Makkonen (2009). The data was collected in Addis Ababa in May 2023 and the workshops focused for ensuring online learning quality and creating management practices and culture. Compared to the taxonomy the main result is that the respondents in our workshops refer to be practical and concrete in implementing online learning. The quality issues are emphasized such as in the taxonomy. This paper provides guidelines for implementing online learning in African context.*

## 1. BACKGROUND

Previous projects have shown that a sustainable shift towards e-learning requires from the management understanding about the new learning and teaching structure, decision making and involvement. Pedagogical capacity building process will also change the organization's power and social structures, which may lead to resistance to change. Kotter's 8-step change management model (Kotter 2008; Kotter 2014) is internationally renowned and inclined to different transformation processes. In this project Kotter's model was applied from the beginning to strengthen the pedagogical and technological development and capacity building through a creation of support structures and management and leadership practice that enable pedagogical renewal, and sustainable digital online learning and teaching.

In our paper we will show a structured chart how to organize online learning in TVTI; Technical and Vocational Training Institute in Addis Ababa, using the variant of Sprague and Watson taxonomy. The strategic, tactical, and operational division in the management, organization, planning and quality assurance of online learning made it easier for the community to see the big picture and to place the necessary tasks in different areas and levels of responsibility.

## 2. MIDDLE MANAGERS WORKLOAD WORKSHOP

Using the strategic, tactical, and operational division in the management, organization, planning and quality assurance of decision support systems make it easier for the community to see the big picture and to place the necessary tasks in different areas of responsibility. (Sprague R.H & Watson H.J. 1993). Recommendations to review job descriptions at different levels of management and what kind of clarifications should be made are related to the reform of teaching strategy.

The information gathering workshop for middle managers presented in this paper is one part of a series of change management workshops carried out in the project, which deal with the transition to distance learning, the transformation of teaching and teaching organization. The choice of workshop method is based on testing and learning the practices of co-operative leadership and co-development, which is one goal of the project.

As a method the workshop has one positive size, which is opportunity for discussion. This has been seen as a very fruitful opportunity that generates new ideas. As a community, TVTI is a highly conversational and development-friendly community, which promotes the adoption of new ways of working.

This information gathering workshop is the first time that we have examined the tasks and job descriptions of middle managers. Until now, the focus has been all the time on the implementation of distance learning pedagogical solutions organized by them and the implementation of student's learning process.

## 2.1 Cooperative workshop assignment

In a workshop, which was held at the end of May 2023, a group of middle managers were asked to increase decision-making or management tasks within their area of responsibility, related to online learning, in different levels. They have been given few examples (20), which they could use but they were not mandatory. The workshop (3h) included instructions, presentation of the theoretical background of taxonomy thinking, discussion in teams while collecting material in tables. At the end a joint review and adoption of the breakdown were carried out. Our task in the project is to provide the institutional support to the managers while they are going on with online learning and teaching strategy development.

They were asked first to discuss in groups and, based on that, determine what kind of tasks were included in their job description in responsibility for organizing online learning. At the same time, they were asked what the managerial actions in their work are and where in this 3-sections they rank on. They were also asked to consider whether they were strategic, tactical, or operational divisions tasks.

## 2.2 Data collection process

The aim in this workshop was to highlight the work tasks at different levels and based on different decision-making that the organization of distance learning requires from the educational institution organization. This decision was taken because: in the case of TVTI, the pandemic forced people to start distance learning without a thorough preparation of teaching strategies and learning environments. The resourcing of teachers, pedagogical solutions for distance learning, supervisory work and leadership were also based entirely on a teaching method based on contact teaching and learning.

Table 2 Classification and tabulation of tasks

<b>MOPEDE project  TVTI - CENTRIA - JAMK</b>			
<b>Online learning management in Addis Ababa  31.5.202   3h  </b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>A. Harmoinen  Centria UNI  </b>	<b>Strategic</b>	<b>Tactical</b>	<b>Operational</b>
<b>1. Promote online learning</b>	x	x	
<b>2. Infrastructure of enrolment systems</b>	x		
<b>17. Self-development</b>	x		

<b>18. Financing structures and new financing needs</b>	<b>x</b>		
<b>19. Taking care of sustainability</b>	<b>x</b>		
<b>7. Development of the entire higher education organization</b>	<b>x</b>		
<b>14. Students' equal treatment – how to ensure that</b>	<b>x</b>		<b>x</b>
<b>15. Continuous development</b>	<b>x</b>	<b>x</b>	<b>x</b>
<b>16. Future development needs</b>	<b>x</b>	<b>x</b>	<b>x *</b>
<b>13. Students' wellbeing in the UNI</b>		<b>x</b>	<b>x</b>
<b>3. Student services organization and evaluation</b>			<b>x</b>
<b>4. Quality criteria for online teaching</b>		<b>x</b>	
<b>5. Curriculum work</b>		<b>x</b>	<b>x</b>
<b>6. Quality criteria</b>		<b>x</b>	
<b>9. Eonline teaching modules approval</b>			<b>x</b>
<b>8. Online teaching skills development</b>			<b>x/+</b>
<b>12. Student's feedback of their learning</b>			<b>x</b>
<b>10. Teacher's workload track</b>		<b>x</b>	<b>x</b>
<b>11. Student's workload in course and in study programs</b>			<b>x</b>
<b>20. Taking care of equality in education</b>	<b>**</b>	<b>**</b>	<b>**</b>
<b>21. Our role is categorized in the Tactical and Operational level.</b>	<b>x</b>		
<b>22. Incorporating digital system in the strategic plsu</b>	<b>x</b>		
<b>23. Initiating impact analysis</b>	<b>x</b>		
<b>24. Scaling up the digital learning</b>	<b>x</b>		

<b>25.Collaboration with different organization</b>	<b>x</b>		
<b>26.Scaling the experiences of o-l to the TVET sector as a whole</b>	<b>x</b>		
<b>27.Motivating trainers' engagement in online learning</b>	<b>x</b>		
<b>28.Improving the learning management system</b>	<b>x</b>		
<b>29.Preparing operational plan for e-and online learning</b>	<b>x</b>		
<b>30.Execution of the plan</b>		<b>x</b>	
<b>31.Development tracking mechanism for students' engagement</b>		<b>x</b>	
<b>32.Helpdesk for trainers and students</b>		<b>x</b>	
<b>33.Monitoring and evaluation</b>		<b>x</b>	
<b>34.Development of track mechanism for student engagement</b>		<b>x</b>	
<b>35.Promote blended and online learning</b>		<b>x</b>	
<b>36.Infrastructure of enrollment system</b>		<b>x</b>	
<b>37.Quality criteria for online learning</b>		<b>x</b>	
<b>38.Facilitates student's enrollment</b>		<b>x</b>	
<b>39.Introduce rules and regulations</b>		<b>x</b>	
<b>40.Courseware devid. and implementation</b>			<b>x</b>
<b>41.Assessment of and learning</b>			<b>x</b>
<b>42.Motivating learners to engage in online learning</b>			<b>x</b>
<b>43.Monitoring and evaluating</b>			<b>x</b>
<b>44.Excaution of operational plan</b>			<b>x</b>

<b>45.Students learning outcome assessment</b>			<b>X</b>
<b>46.Teachers self development, continuous development</b>			<b>X</b>
<b>47.Implementing pedagogical approach</b>			<b>X</b>
<b>48.Identification and modification behaviors</b>			<b>X</b>
<b>49.Setting rules and regulations digital environment</b>			<b>X</b>
<b>50.Courseware development implementation</b>			
<b>First 20 sentences were pre-given and the next 30 are tasks defined by the middle managers itself.</b>			
<b>* middle management</b>			
<b>** Ministry level decisions /common responsibility</b>			

### 3. RESULT OF THE DATA COLLECTION WORKSHOP

The project outcome is that online learning will be institutionalized in ETU and its 15 satellite colleges and integrated into their curricula to update teaching and learning methods in vocational teacher education. To achieve this goal, an institutional support is needed, which primarily means financial, managerial, competence updating, curriculum reform, ICT support and student welfare decisions. It is good to have a strategy, vision, mission, and goals for reforming teaching as a basis for making decisions. In the TVTI case currently under review, the pandemic forced a rapid transition to distance learning without comprehensive advance planning. The material shows the motivation of the leaders and their positive attitude towards the development of teaching.

Student services organization and evaluation was not seen as a strategic or tactical task for anyone to do. At this stage, organizing student services was seen as a practical organizational task. This suggests that the respondents did not yet have a clear picture of student services related to distance learning. From experience, we know that distance learning involves many new responsibilities and tasks related to student services, both from the point of view of the organization's administration and from the student's point of view.



The broad will to develop was well reflected in the responses. Especially in responses at the strategic level. The respondents had compiled a very comprehensive and concrete set of tasks specifically related to their area of responsibility and decision-making. These are the impact assessments that affect quality management and the funding of educational institutions, as well as the preparation of an online learning action plan. Improving the learning management system was also among these, as well as motivating teachers and promoting commitment to the implementation of online learning.

Ensuring equal treatment of students was also seen as a task at the strategic level. Decision-making, student guidance and well-being were considered important tasks. This is directly related to the quality of teaching and student numbers in the institution.

### **3.1 Strategic level output**

At the strategic level, managers were visionary by seeing the future trends in education. In addition, decisions are made at this level of different levels of investment in the long term. At this level, institutional resistance is also addressed and the change in organizational culture is promoted. Resources should be ensured at this level that progress according to the strategy is possible. Incorporating digital system in the strategic short- and long-term planning.

The reorganization of the cost structure of teaching and budgeting were considered to be tasks at the strategic level. Organizing distance learning requires equipment purchases, infrastructure construction, user training and creating a general cost structure on a sustainable basis.

Students' equal treatment is a strategic level decision making task. In strategic level the managers have very important role by motivating teachers' engagement in online learning and taking care of the sustainability online learning development. Development of the entire organization needs strategic decisions first how to share the responsibility with tactical and operational level.

### **3.2 Tactical level output**

Tactical level started by building an online-learning team so that all the satellites are involved. Management process needed methods to ensure the quality of online-learning, teaching, and creating a culture of sharing knowledge and experiences. At tactical level the branches create their plans to reach the goals defined in the strategic plan. In Ethiopian context this means observing differences between geographic areas and population in different areas.

The budgeting of the cost structure of teaching was considered significant of the tasks at this level. New content includes equipment and infrastructure construction

and related procurements, user training and creating a cost structure on a sustainable basis. Tasks at the tactical level were considered to be the implementation of economic negotiations with various partners, for example, if necessary to carry out equipment purchases.

### **3.3 Operational level output**

In operational division work takes care of online learning environment - which meant Moodle platform. Course content needed development and a structure of blended learning actions. In operational level organization had to take care of skilled workforce continuous online-training, quality definition, continuous improvement of courses and assessment and infrastructure for technical and pedagogical support. The whole management principles needed new structure. In the context of MOPEDE it is important to look at the usefulness of ICT and pedagogical methods.

At the operational level, the tasks are related to organizing distance learning and motivating students, monitoring and evaluating learning progress. At the operational level, action plans are implemented, monitoring is carried out and student learning is assessed. The tasks at this level also include motivating and encouraging teachers to develop themselves, as well as enabling the introduction of new pedagogical methods.

Although students' well-being in connection with distance learning is visible at the operational level, its development as a whole was seen as an area of joint responsibility at all three managerial levels. This shows that the co-operative way of working, that was one goal of the project, has been learned, tried, tested and implemented.

### **3.4 Modified taxonomy, Example of a taxonomy levels, factors and outcomes**

Compared to the modified taxonomy by Aggarwal and Makkonen (2009) we found notable differences at the three levels of management. At the strategic level we found that our respondents in Ethiopia emphasized building good infrastructure for learning instead of visionary thinking or related strategic thinking. Those infrastructure related issues are more tactical issues in the taxonomy.

At the tactical level we found the similarity in working on quality issues of online learning. The easiness of learning was emphasized in the same way as in the taxonomy using different means such as the helpdesk. However, the respondents for this study did not mention value and benefit issue of the study programs because in general, the respondents were asked to explain what to do in practice at the tactical level.

The workshops focused on the guidelines and measures for ensuring online learning quality; organizing and structuring education; and creating management practices and culture and to ensure continuous development. Sprague and Watson (1993) taxonomy was a useful way to motivate personnel as it clearly identifies hierarchy, time management and personnel involved in the planning, building, launching, and maintaining the online learning process (Aggarwal and Makkonen, 2009).

Table 1 Levels, factors and outcomes

In the way the taxonomy includes following levels and features:

Levels	Decisions	Outcome
<b>Strategic</b>	<p>Visionary senior management</p> <p>Plan for initial investment</p> <p>Institutional resistance</p> <p>Changing organizational culture</p>	<p>Top management commitment</p> <p>Champion</p> <p>Enthusiastic stakeholders</p> <p>Long term online learning diffusion plan</p>
<b>Tactical</b>	<p><b>Management:</b></p> <p>Built an online learning team.</p> <p>One size does not fit all</p> <p>Develop custom-centric approach.</p> <p>Online learning is not for everybody.</p> <p>Faculty:</p> <p>Online teaching is not for everybody.</p> <p>Share knowledge</p>	<p><b>e-Readiness:</b></p> <p>Value-benefit analysis</p> <p>Motivated students</p> <p>Reliable infrastructure 24/7 technical support</p> <p>State-of-the art infrastructure</p> <p>Skilled workforce</p> <p>Continuous e-training</p> <p>Seminars and conferences</p> <p>Globally accredited programmes</p>

		Standardised courses
		Quality programmes/courses
		Continuous improvement
<b>Operational</b>	<p>Develop online learning environment.</p> <p>Develop course content and management policies.</p> <ul style="list-style-type: none"> <li>• Think ‘globally’ but act ‘locally’</li> </ul> <p>Develop online learning infrastructure.</p> <p>Develop ongoing assessment plans: Course, Program, Faculty</p>	

#### 4. SUMMARY

The staff is interested in self-development, that can be seen in the table 2. Online learning and teaching represent totally new way of. Management and middle managers have seen the value of online learning and are interested in making decisions to promote online learning and blended learning.

There are still major challenges in the infrastructure of enrolment systems, evaluation, and the organization of student services. The definition of quality criteria for teaching is related to curriculum work, which requires participation in the development of the entire higher education organization.

TVTI is currently working on a teaching strategy. The community already has experience of what kind of tasks at different levels, decision-making, cooperation, distance learning, development and related job descriptions require.

The taxonomy classification of work tasks made in the workshop highlights the range of tasks related to distance and online learning at the level of the entire educational institution organization. The use of taxonomy also highlights overlapping or similar tasks at different levels in the job descriptions of different managers.

With the help of taxonomy, it is possible to detect the accumulation of workloads or deficiencies in the performance of necessary tasks. The use of taxonomy also makes it easier to agree on the division of responsibilities between management and middle management, to divide responsibilities for quality management in teaching, and to increase development cooperation and communality in management actions and the distribution of responsibilities.

## **5. NEXT STEPS 2024 IN MOPEDE -PROJECT**

As a next step we will define managerial choices and evaluate their fundamentals for developing online learning with the help of the following three contents, justification, communication, and quality. In the evaluation, we use the descriptions at the strategic, tactical, and operational levels created in the previous workshop and reported in this paper too.

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# CAN PUPILS CHANGE THE WORLD? A DIALOGIC APPROACH FOR SUSTAINABILITY EDUCATION IN DIVERSE CLASSES

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## ABSTRACT

*Education for Sustainable Development (ESD) aims to empower young people to deal with sustainability issues, such as climate change or the declining biodiversity. However, not all youngsters get equal opportunities in ESD. The challenge is to address sustainability in classes with a high sociocultural diversity. A dialogical approach stimulating pupils to think about sustainability questions is promising to include a group of sociocultural diverse pupils, as the approach allows pupils to link school-based knowledge with their own experiences embedded in one's sociocultural background. This contribution examines a teaching method to enhance pupils' reflection (10-14 year-olds) about sustainability developed through Educational Research Design. A dialogue facilitator and teachers conducted several sessions in 24 highly diverse classes in Brussels (2021-2023). Directed content analysis on (1) the teacher interviews and (2) field notes by the facilitator-researcher indicates the teaching method influences class dynamics, e.g. the speaking time for language-poor learners increase. This dialogic teaching approach helps young people from a wide variety of backgrounds to engage in shared dialogues about sustainability questions. Yet sometimes, current power relations between groups*

*with an advantaged and disadvantaged position can be mirrored in class interaction. This study allows to formulate suggestions for more emancipatory ESD-education.*

## **BACKGROUND**

Education for Sustainable Development (ESD) aims to empower young people to deal with sustainability issues, such as climate change or reduced biodiversity (Unesco, 2020). Several teaching goals are relevant in the context of sustainability education, ranging from systems thinking or growing an adequate value frame to developing a positive attitude towards sustainability (Verschoren et al., 2023). However, top-down non-dialogic teaching approaches appear inadequate to address these tricky topics for which no ready-made answers exist (Marcussen, Weiss, and Helskog, 2021).

In addition, addressing sustainability in diverse classrooms has its own challenges. Though only few studies focus on ESD and social inequality, certain groups of young people with a disadvantaged position (e.g. related to socio-economic status or ethnicity) have fewer opportunities for environmental education experiences (Carlone et al., 2015) and develop a lower interest in sustainability issues (Kuthe et al., 2019). This inequality of opportunity within ESD goes against the emancipatory function of education (Van Avermaet, 2007).

To tackle both these challenges within ESD, a teaching method based on philosophical dialogue seems promising. In a philosophical dialogue, pupils explore philosophical questions together in a group under the guidance of a dialogue facilitator (Brenifier, 2004). In this ‘community of inquiry’, pupils try to find possible answers for which there are no unambiguous answers (Lipman, 2003). Sustainability issues are called ‘wicked’ as values influence the problem definition and solution (Remington-Doucette et al., 2013). Integrating multiple perspectives into one’s viewpoint is primordial in sustainability literacy (UNESCO, 2020). The philosophical dialogue approach to ESD is promising as it allows children to explore different perspectives on complex questions (Lipman, 1991), to explore their own (sociocultural diverse) views and attitudes about the environment (Dombayci, 2014) and to uncover value conflicts at the crossroads of people’s, society’s, and technology’s interests (De Schrijver et al., 2018).

A teaching method focusing on philosophical dialogue might still have another advantage in the context of ESD in diverse classrooms. School climate and pedagogical practices are often embedded in white middle-class culture (Bourdieu and Passeron, 1990; Reay et al., 2008). For instance, examples from the day-to-day world given by (often white middle-class) teachers are more familiar to certain pupils than others. Dialogue allows to link school-based knowledge to the - possible contrasting - learner’s own experience (Anthone and Mortier, 2007), which can have a positive effect on pupil engagement for this topic, also among disadvantaged groups. Thus, a dialogic approach might help teachers to acquire an understanding



of the ideas and thought processes in young people's minds, ideas that may vary from the middle-class context teachers may be more familiar with.

## RESEARCH QUESTIONS

**RQ1** What opportunities and challenges do teachers express in introducing a teaching method for ESD based on dialogue in a diverse classroom context?

**RQ2** What is the perceived impact of a dialogue-based ESD teaching method on pupil participation in a diverse classroom context?

## DESIGN OF THE STUDY

### Educational Design Research

A teaching method was developed using Educational Design Research (EDR), characterised by an iterative design and research process in which educational interventions are designed, tested, and adapted through systematic research (Plomp and Nieveen, 2007). The feasibility and usability of the material are evaluated, and theoretical insights about this intervention are explored (McKenney and Reeves, 2021). Following interviews with experts in the field of Education for Sustainable Development (ESD) and dialogical teaching methods, a professional researcher-moderator conducted either two sessions (2022-2023) or three (2021-2022) sessions in a total of 24 highly diverse classes (5<sup>th</sup>-8<sup>th</sup> grade) in the metropolitan area of Brussels, Belgium. The diversity encompasses variations in socioeconomic status, language, and ethnic background among the pupils. This diversity in the classrooms was not an initial focus of this study, nevertheless, it yielded compelling and inductive findings (see below). Afterwards, after a workshop for teacher, the teachers tested the developed material. Directed content analysis (Hsieh and Shannon, 2005) is applied to the semi-structured teacher interviews (n=17) executed by another researcher or the researcher-moderator as well as to field notes taken by the researcher-moderator, with the aim to addressing the research questions<sup>7</sup>.

### Developing the teaching method: Thinking about sustainability

The teaching method focuses on three pivotal competences within ESD: systems thinking, value development, and the cultivation of a sustainability attitude (Boeve-de Pauw et al., 2015). In line with the term systems thinking, we coined the latter two competences respectively value thinking and action thinking. In this manner, these concepts also emphasize that the method prioritizes *thinking about*

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<sup>7</sup> A parallel, second study is also performed in two teacher training programs to develop the teaching method in order to meet the needs of (student-)teachers (this data will not be used and thus described in this paper).

sustainability. *Systems thinking* involves thinking from a larger framework, analysing problems with an awareness of the interaction of different elements (Riess & Mischo, 2010). *Value thinking* entails the ability to develop a conscious and well-substantiated value framework pertaining to sustainability, encompassing the ability to question certainties and discern the beliefs of others (Boeve-de Pauw et al., 2015). Central is the recognition and acknowledgement of multiperspectivity (e.g., De De Kraker and Lansu, 2007). *Action thinking* refers to reflecting on one's own behaviour and attitudes towards sustainability issues, as well as considering the efforts one would exert to alter behaviour (Wilson, 2014).

The EDR-process led to the development of the teaching method focusing on 5 themes: climate, biodiversity, water, waste, and technology. In the first EDR-cycle, philosophical questions were developed in these themes, such as: 'Can children change the world?' or 'Are people more important than animals? (Figure 1)'. Later versions also included philosophical exercises (Figure 2 and 3). The teaching method provides more than 15 types of activating learning activities based on dialogue, such as categorisation exercises or thought experiments, inviting pupils to develop their ideas and answer philosophical questions.

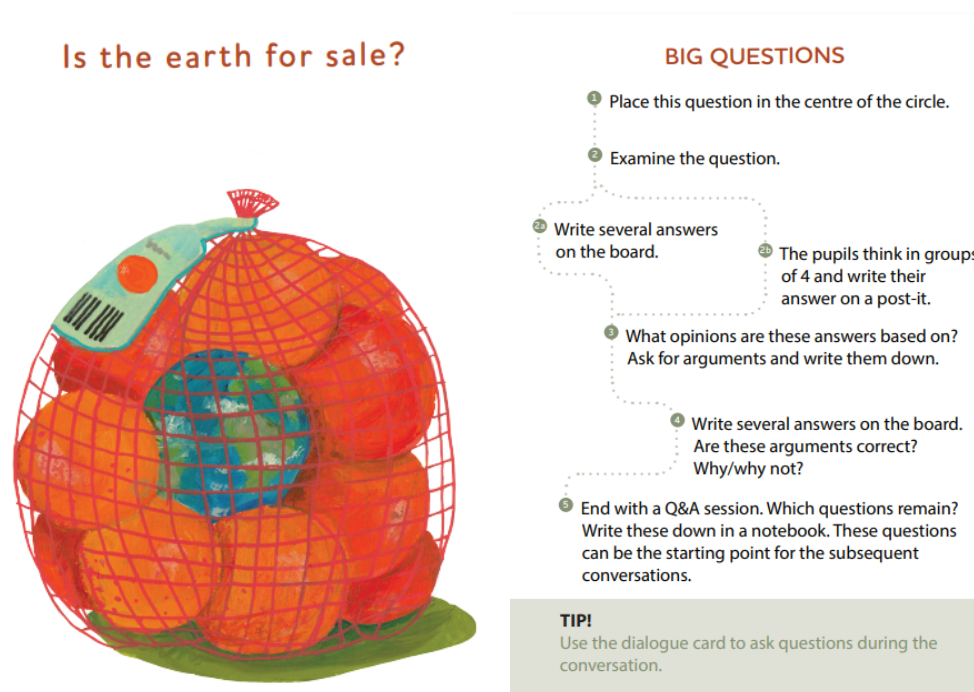



Figure 1: Examples of a card with a 'big' (philosophical) question at the front and teacher instruction on the back

WATER

## CHOOSING IS LOOSING



97-year-old neighbour

A 40-year-old woman with a high fever (you have to drink a lot). The woman is a professor and may have developed a solution to solve the water problem forever.

A farmer who has to work in the fields all day to make sure we can eat vegetables tonight.

A crying baby

A dog

### HOW DO YOU DISTRIBUTE WATER?

- 1 Place a bottle of water and five cups in the centre of the circle. Each cup corresponds to one of five characters.
- 2 A pupil divides the water over the five cups and motivates the distribution.
- 3 The next pupil can make a different choice, redistribute the water and argue why.
- 4 Have a class discussion with the pupils.
  - What stands out?
  - Is there a way to distribute water to satisfy everyone?
  - Does the ideal solution exist?

Figure 2. Example of a card with a philosophical exercise and teacher instruction

WASTE

## DRAW YOUR THOUGHTS

A future where there is 100 times more waste in the world than today.

**Other drawing tasks:**

- A future where waste does not exist.
- A future in which you have to keep track of all your waste yourself.
- A future in which plastic does not exist.

CLIMATE CHANGE

## MAKE A CHOICE

Nature needs humans.

Humans need nature.

Too much attention is paid to climate change.

I think climate change is a very big problem that requires a lot of attention.

People are just as important as trees.

A human being is more important than a tree.

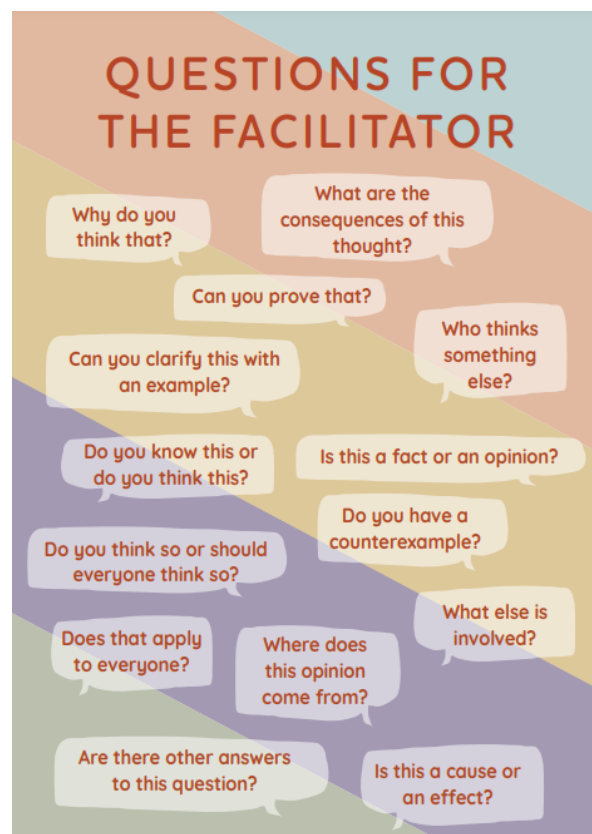
Everyone must do their part to slow down climate change.

Only large companies should make an effort to slow down climate change.

Figure 3. More examples of prompts for philosophical thinking exercises

During the EDR, a list of seven design principles were identified that guided the development of the learning method (see Van den Broeck et al., 2023), such as the

goal to generate argumentation in pupils through dialogue and philosophical exercises and shed light on multiple perspectives on the same problem through open questions. The extensions of the philosophical questions with exercises met the need to vary in level of difficulty, for both pupils and teachers. Teachers who are less experienced in guiding a dialogue should also be able to apply the teaching method. For the final version, a set of cards was created with these philosophical questions and exercises, including teacher instruction at the back of every card (Figure 1 and 2), a general dialogue card (see figure 4) and the inclusion of a manual.



*Figure 4. General dialogue card with questions for the facilitator*

## RESULTS

We report on the opportunities and challenges that teachers experience when introducing a teaching method for ESD based on dialogue in a diverse classroom context. We also report on the perceived impact of a dialogue-based ESD teaching method on pupil participation in a diverse classroom context.

**Opportunity: EcoZoo as a teaching method to invite reflection about sustainability**

Teachers recognize the need to look for different ways to address sustainability education in schools, as one teacher remarks:

*“Our strategy does need a new approach. Last year during that project week on waste, we kept trying the same things. Actions around lunch boxes or garbage on the playground. More from the school, from top to bottom. So you often find yourself trying to tick things off, while you want to create movement in the children's heads.”*

Teachers further emphasize how a dialogic teaching method can give ownership to the children when thinking about sustainability questions (and how their normal classroom or school approach is not always able to do that):

*“I do think it's important that they [the pupils] also really indicate ‘This is what we see as a problem’ or ‘This is how we think about it’, because that doesn't happen often if you don't do those [philosophical] exercises.”*

Some teachers also expressed how some of the general facilitation interventions that are characteristic in philosophical dialogues help children to formulate their thoughts about sustainability. One teacher said: *“What I will definitely take with me is having another child repeat what someone else has said. It makes you think about formulating your thoughts.”* Furthermore, teachers indicate that pupils learn through the EcoZoo teaching method that sustainability questions not only have one correct answer, as the answer may depend on the perspective that is taken: *“[pupils] also learn to express their opinions and they learn that there is not always 1 correct answer.”* Thus, pupils learn to address one issue through different perspectives.

**Opportunity: Dialogue informs the teacher of what pupils think**

As the dialogic approach focuses on the pupil's perspective, this approach also provides the teacher with information on what pupils are thinking and mastering with regard to sustainability. A teacher phrased this as follows: *“By pretending you know nothing, it's easier to get into the pupils' heads.”* Thus, philosophical questions and exercises can serve as a preparation to assess the pupils' prior knowledge. EcoZoo provides a tool before a different kind of teaching with a focus on knowledge transmission can be explored. A teacher explained that:

*“[philosophical dialogue is] a very nice thing to see to what extent are the pupils concerned with that [climate change]? And what do they think they know without you taking the lead? [...] and that, so to speak, they leave with more questions than they came in with. Which means that perhaps in the next lessons, where you provide that information, uhm uh yes, the pupils start to form or revise their opinions.”*

### ***Challenge: From teacher to facilitator, a shift in roles***

In a classroom dialogue, the EcoZoo method invites teachers to become dialogue facilitators. Teachers expressed that asking the adequate facilitation questions is not as easy as it seems and teachers express a need for further training to do this adequately. Having a workshop in your own class by a professional facilitator has an illuminating effect on the teachers' idea of questioning. The teacher appreciates the professional facilitator's questioning style and describes it as follows:

*"I thought the facilitator's approach was very good. You ask a question. You ask what the consequences will be. You give them time to formulate different answers. You ask for alternatives. You let pupils synthesize what others have just said. You return to that question afterwards. I thought that was very good to be able to maintain the structure."*

The facilitator's stance introduces another challenge, a teacher remarks: *"Challenging, yes, the philosophizing itself, I find that...I think I'm a bit too entrenched in being a teacher that want to answer their [pupils'] questions"*. The teachers experience some role confusion, on the one hand they are meant to be facilitating pupils' thinking process, on the other hand they were trained to provide the correct answers to the pupils. This tension is especially acute when pupils' make factual mistakes in the answers they provide. At those moments the teachers find it difficult to emphasize the thinking process, rather than immediately correct the pupils' mistake.

A similar confusion may occur among pupils as they are not used either to this new teaching approach. The pupils as well are socialized to see the teacher as the one giving answers rather than as the one providing thinking prompts. Sometimes, pupils stick to what they are used to and when they are asked to phrase an argument or take a position, they keep asking the teacher whether what they are saying is correct.

### ***Pupil participation: Hearing other voices in the classroom by embracing multiperspectivity and slowing down***

The teaching material also helps teachers scaffold pupils' thinking processes in a way that makes pupils eager to participate. Many teachers expressed how the pupils were very engaged when the teaching method was introduced. A teacher said *"First of all, I would like to say that of the 36 children [2 groups], 3 children did not speak. I thought that was striking. Normally many children do not dare to speak."* Teachers expressed how they were specifically surprised by the cooperation of some pupils. When questioned further, these pupils often concerned not only introverted pupils but also disadvantaged pupils in terms of sociocultural background who often not speak in class. Teachers also seem to perceive an overall change in classroom dynamics that gives language-poor pupils more speaking time.

Teachers are surprised by the responses of certain pupils in the dialogues, as expressed by this teacher:

*“Uhm, you hear the strong ones...all the verbally strong children hear very often during lessons. But in philosophizing [...] everyone has a chance to speak. [...] a few pupils spoke and I thought “Wow, you can express it very well”, but I just didn't know because you rarely get to speak!”*

The teachers interviews show how the approach may impact his/hers expectations of pupils. It is apparent that the context of philosophical questions, making room for many different ideas and perspectives, invites children to speak that usually do not feel comfortable enough to do so. As a 6<sup>th</sup> grade pupils said *“we were working together with our thinking instead of wanting to be right.”* (field note facilitator-researcher). The approach also allows children to give examples of their day-to-day experiences embedded in socio-economic or cultural backgrounds in answering the stimulating questions.

As a challenge for a dialogic approach to ESD, teachers note the need for a safe classroom context as well as the importance to focus on concept clarification for language-poor learners (e.g., clarification of words such as sustainability). Yet, precisely the philosophical dialogue's focus on the meaning of words (such as climate, sustainability, change, ...) seems beneficial as it installs another rhythm in class and slows down the conversation, which gives all pupils (also more introvert pupils as well as pupils from a disadvantaged background) the necessary time think and speak.

*“This method gives them much more speaking time. Children feel safer in this context. It puts less pressure on their cognitive abilities. Philosophizing is more within their reach. You feel that very hard. Many children are now given much more attention who would otherwise not dare to do so. Chiara, Hamza, Rina, Maysa. They speak much less during regular lessons or debates. They are not fast enough or not fluent enough. It is very noticeable that they dare much more here. Maysa literally says that: I don't have enough language. While she can make fantastic arguments during the sessions.”*

A pupil from the 6<sup>th</sup> grade remarked *“[I learned] that everyone has a different opinion and not always the same. And that many people in the class were smarter than I thought.”* Indeed, this dialogic approach can help pupils perceive more pupils as legitimate and competent members of the class community. As the facilitator-researcher wrote down in the field notes *“You take their thinking seriously and therefore you also take them seriously. That's something new for some of them.”*



One of the participating teachers points out that this dialogic approach can play a role in stimulating a sense of belonging in school, an attitude that is often less present among non-white non-middle class youth<sup>8</sup>. This teacher said:

*“There are children here who are convinced that they are stupid. That is very sad [...] That is so ingrained in their system and is partly due to the school system. They are sixth graders and have already heard that they are going to the B stream<sup>9</sup>. That is very disastrous because it has a paralyzing effect on some people. You don't even hear them speak. They whisper. Because they doubt their own abilities. ‘It probably won't be good’ is what they think and sometimes dare to say. Hopefully, philosophizing will give those children a boost. That they are worth it. That they realize that their thinking is just as important as that of others. That they learn to express their opinions because they will need that anyway”.*

The facilitator-researcher also wrote down in the field notes that *“when you let them [pupils] actively think and encourage them to think about it, they will feel heard.”* However, we also observe that existing power relations can be reinforced in interactions (e.g., interrupting or correcting ethnic minority pupils by ethnic majority pupils). In addition, the home environment remains very important, as also was underscored by a teacher. *“The home environment and all that. I think that also plays a role. Is there room for them [to talk or do something with regard to sustainability]?”*

## DISCUSSION

Education for Sustainable Development (ESD) aims to empower *all* young people to deal with sustainability issues such as climate change or declining biodiversity. As dealing with sustainability may be a challenge for all of us, it should be a topic that is brought to the attention to every pupil, also pupils from less privileged groups.

EcoZoo – a dialogical approach on ESD focused on *thinking (together) about sustainability* – may be a promising approach to include *all* pupils in ESD as dialogue as a didactic intervention helps encourage pupils from diverse backgrounds to participate in the reflection process. Our observations demonstrate how the teaching method creates high pupil engagement around sustainable development for a diverse group of pupils. The less ‘schooly’ approach encourages pupil engagement, including among disadvantaged groups where anti-school attitudes are more often observed (Agirdag, Van Houtte, and Van Avermaet, 2012). The approach allows

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<sup>8</sup> As sociocultural background is a strong predictor for educational attainment in Flanders, these pupils often have lower school belonging.

<sup>9</sup> This stream, starting from grade 7, prepares pupils for the labour market and not for higher education. B-stream is perceived as the lower stream in the Flemish education system.

pupils to reflect upon sustainability challenges by using the language and context of the pupil.

The school has been described as the institutionalization of middle class culture (Bourdieu and Passeron, 1990). This is also obvious in teaching practices as, for example, teachers provide examples on sustainability stemming from a middleclass background (e.g. install solar panels or reduce plane travel), that are less in line with the day-to-day world of disadvantaged groups. The dialogical approach responds to concrete thoughts of (disadvantaged) youngsters and allows pupils to link school-based knowledge with their own experiences embedded in one's sociocultural background.

In schools, generally, pupils with lower language proficiency get from an early age on fewer interaction opportunities (Perry et al., 2018). As teachers working with EcoZoo express how the dialogical method seems to give more speaking opportunities and engage these pupils more than more traditional approaches of teaching, this approach can help address the challenges with regard to interaction and speaking time. Future research should explore if dialogical approaches can have positive effects on teacher expectations, a teacher-attitude that influences a wide range of pupil outcomes. More research is also necessary on the question of this less academic approach can stimulate school belonging and engagement, which is often lower among underprivileged groups (Chiu et al., 2016).

In philosophical dialogue, a different academic discourse is established wherein any idea can be discussed and explored. Thus, introducing philosophical dialogues may enable children from disadvantaged backgrounds to be recognized as legitimate and competent members of the classroom community. Existing power relations are however sometimes also confirmed in interaction (Læssøe, 2010), for example, a white pupil who falsely corrects the answer of a student of colour and gets approval from the rest of the class.

With regard to the perspective of the teacher, the research showed how teachers are enthusiastic but the role of a facilitator, is not always easy to take. There is a need for clear exercises that generate dialogue, a targeted question approach for teachers. Some concrete tips for teachers arising from this research are: (1) put your knowledge authority to the side for a moment; (2) make room to examine the meaning of a concept together (concept clarification), (4) let pupils summarize what other pupils said, (5) invite someone to your class to do a philosophical dialogue so you can take on an observatory role, (6) Make social inequality in sustainability open for discussion, which can also be done by philosophical questions (e.g., Questions like “are poor people better for the climate than rich people?”).

Overall, the research also leads to certain insights for the teacher training programs. We need to prepare aspiring teachers for the challenges in combatting inequality of opportunity among pupils. Also, teacher training can raise awareness among aspiring teachers that the context they refer to in their class can form a mismatch with the home environment of children. By using teaching methods inspired by philosophical

dialogue, teachers can encourage to create a teaching environment in which the experiences and codes of languages of the home are welcome.

In conclusion, philosophical dialogue has the possibility to work empowering in ESD. Or as one of the interviewed teachers said: “*Philosophising is – which has struck me now - that children feel engaged in a conversation. I don't believe sustainability is something that only privileged people should be involved in.*”

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# THE RELATIONSHIPS AMONG L2 ANXIETY, WILLINGNESS TO COMMUNICATE, AND SELF-ASSESSED PROFICIENCY AT AN ETHIOPIAN PREPARATORY HIGH SCHOOL<sup>1</sup>

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## ABSTRACT

*This research looks at the links between L2 anxiety, L2 Willingness to communicate (L2WTC), and self-assessed competency of high school EFL students. In this quantitative survey, 609 12th-graders participated. The result revealed that students had low levels of L2WTC inside and outside the classroom and self-assessed English proficiency. They reported that a high level of debilitating anxiety was high but a low level of facilitative anxiety. The Debilitating anxiety showed significant negative correlations with L2WTC in and out of the classroom and with self-assessed proficiency. However, facilitative anxiety showed a positive relationship with these variables. These interrelationships are critically examined to enlighten English instructors, students, parents, curriculum designers, and researchers.*

## INTRODUCTION

Effective communication is one of the primary goals of learning L2. It has been argued that effective communication requires linguistic and communicative competence (Macintyre et al., 1998). This occurs because some L2 learners have limited linguistic competency and communicate in L2 more often than those with advanced linguistic competency. In this scenario, successful communication may depend more on effectively conveying messages and understanding others (communicative competence) rather than solely relying on language proficiency (linguistic competence).

In L2 classrooms, teachers are challenged to encourage students to engage in conversation using the target language. Teachers express concern over learners who actively avoid engaging in communication. The topic has garnered significant attention within the realm of research on L2WTC. L2WTC refers to the willingness to converse with a specific person using an L2 (MacIntyre et al., 1998). A wide range of factors were discovered in earlier research as antecedents of WTC, revealing the interplay of psychological factors and their impact on learners' communication tendencies. Another essential factor that substantially impacts language acquisition is foreign language anxiety, as noted by Horwitz in 1986. This is closely associated with L2WTC (Dörnyei, 2005; Peng, 2015). L2 anxiety encompasses the apprehension or unease experienced by individuals when they are expected to use an L2 in social or academic situations (Dörnyei, 2005).

Research carried out in various countries, such as China (Peng, 2015), Iran (Riasati, 2018; Sadoughi & Hejazi, 2023), and Saudi (Arabia, 2022), has demonstrated an inverse relationship between FL anxiety and L2WTC. In other words, individuals who experience lower levels of foreign language anxiety tend to be more willing to communicate. However, the conclusions drawn from these studies should be approached cautiously due to their reliance on Horwitz et al. (1986) scales, such as the Foreign Language Classroom Anxiety Scale (FLCAS), which mainly evaluates the adverse effects of anxiety. Consequently, the findings of such studies may not allow for definitive conclusions to be made. Furthermore, earlier studies limited their focus to oral production solely within classroom settings, without looking into the broader context of L2WTC outside of it and proficiency in other language skills (such as listening, reading comprehension, and writing). Moreover, the relationship between individual factors and L2 outcomes has yielded inconsistent results due to the reliance on outcome measures that focus solely on students' actual (objective) course grades. Finally, although English language instruction in Ethiopia is becoming more communicative to foster students' L2 competence, students remain hesitant and anxious to use their L2 (Welesilassie & Nikolov, 2022), pointing towards the need for further research into the relationship between students' FL anxiety, L2WTC and self-assessed English proficiency. Hence, the current study takes an innovative approach by categorising anxiety as facilitative and debilitating and by examining their relationships with L2WTC both in and outside classrooms and self-assessed English proficiency in Ethiopia, a previously unexplored context. This study may expand the theoretical and empirical understanding of improving English teaching, learning, and communication in Ethiopia and other comparable EFL environments. The following research questions are addressed:

1. What were the students' perceived L2WTC, anxiety and self-assessed proficiency in English?
2. What was the relationship between L2WTC, anxiety and self-assessed proficiency in English?

## REVIEW OF THE LITERATURE

### L2WTC

In 1985, McCroskey and Baer formulated a theoretical construct known as WTC, drawing inspiration from Burgoon's (1976) concept of "unwillingness to communicate." The latter concept was initially devised to elucidate the



unwillingness to communicate in one's first language (L1). McCroskey and Baer's conceptualisation of WTC posits that it is an inherent predisposition within individuals, suggesting that their inclination to communicate in their L1 remains relatively consistent across various temporal and situational contexts.

During the 1990s, the notion of WTC was introduced in the field of L2 study area. According to MacIntyre et al. (1998), it has been argued that in the context of L2WTC, there is a combined influence of both individual and environmental elements. According to the research conducted by MacIntyre et al. (1998), the inclination to engage in communication in L2 with a given individual at a particular moment is unlikely to be a straightforward reflection of the same inclination in L1. The frequency and duration of L2 use, both inside and outside the confines of the educational setting, exhibit variability contingent upon a multitude of linguistic, communicative, social, and psychological aspects. The authors provided a more precise definition of L2WTC as the willingness to converse with one or more individuals using L2 at a particular moment. They also presented a heuristic model encompassing several aspects that influence WTC.

According to this model, dual characteristics, including situational and individual factors, affect individuals' L2WTC, which differs from the trait feature of willingness to communicate in L1. The concept of individual factors pertains to the long-lasting and consistent personality traits that individuals exhibit in their communication in L2. These traits remain relatively stable over time and across various situations. Several factors contribute to effective communication, including self-confidence, communicative competence, perceived communicative competence, motivation, and anxiety. On the contrary, situational factors refer to temporary and situational elements that influence communication. These variables include unique circumstances, the desire to communicate with a particular individual, possibilities for language acquisition, the availability of interlocutors, and familiarity with the subject matter.

## **FL anxiety**

FL anxiety refers to the worry or unease felt by people when they use their L2. This form of anxiety may result in bodily reactions such as perspiration, shaking, and a racing pulse, as well as psychological expressions including self-doubt, negative self-talk, and avoidance strategies (Horwitz, 2010). Considerable research has been undertaken on the impacts of FL anxiety, with various elements considered to contribute to it, including fear of making errors, unfavourable appraisal by others, and lack of confidence in their L2 ability (Dörnyei, 2005)

Psychologists have identified multiple categories of foreign language anxiety, including state/trait anxiety and facilitative/disabling anxiety (Dörnyei, 2005). The trait versus state anxiety category tackles anxiety's sustaining feature: persistent or occasional concern. State anxiety refers to transient and situational emotions of anxiety triggered by specific events or circumstances (Horwitz et al., 1986). Trait anxiety, on the other hand, is a relatively stable personality trait; individuals may



consistently experience elevated levels of anxiety in various situations (Dörnyei, 2005).

The second distinction concerns facilitative/beneficial and debilitating/inhibitory anxiety, describing how anxiety may aid or impede language acquisition (Alpert & Haber, 1960; Dörnyei, 2005; Scovel, 1978). Facilitative anxiety, a kind of anxiety experienced by language learners, could produce positive results (Dörnyei, 2005). It acts as a spark, encouraging students to increase their study efforts and dedication. Student attention and engagement may increase if fear is seen as a signal of task relevance and the associated investment of effort. As a result, facilitative anxiety promotes increased involvement and concentration in the learning process and focuses on the present educational goal (Scovel, 1978). Learners experiencing debilitating anxiety may feel overburdened, agitated, and apprehensive, making it difficult to concentrate and retain information. In the context of L2 learning, debilitating anxiety can negatively impact the learner's confidence, willingness to communicate, and overall performance.

Studies in the relationship among L2 anxiety, L2WTC, and proficiency

The relationship between L2 anxiety, L2WTC, and proficiency has been a subject of interest among researchers in the field of L2 learning. Several studies have been conducted in different contexts to examine the relationship among these constructs. In this regard, Peng (2015) conducted a study in China and found that despite high levels of L2WTC both inside and outside the classroom, levels of L2 anxiety were relatively low. The study further revealed that L2WTC inside the classroom was negatively associated with L2 anxiety, while a statistically significant positive yet weak association was noted between L2WTC inside and outside the classroom.

Similarly, Khajavy et al. (2018) investigated the relationship between emotions and L2WTC inside the classroom among Iranian secondary school students. The findings indicated that the students had above average and low debilitating anxiety, and enjoyment was positively related to L2WTC, while foreign language anxiety was negatively related to L2WTC. In another study conducted in the Iranian EFL context, Riasati (2018) found that learners were willing to speak English in class, and the vast majority demonstrated modest levels of debilitating anxiety. The study further revealed that L2WTC was negatively correlated with language learning anxiety while positively correlated with language learning motivation and self-perceived speaking ability.

Moreover, Zhou et al. (2020) explored the potential moderating effect of foreign language anxiety on the relationship between L2 competence and L2WTC among Chinese study-abroad English learners in Belgium. The study found that participants reported pretty high levels of L2WTC and low levels of foreign language anxiety in L2 communication outside the classroom. However, highly competent Chinese EFL users became less willing to communicate in English due to high levels of language anxiety.

Finally, Alrabai (2022) investigated the potential connections among learners' negative emotions (anxiety and boredom), positive emotions (enjoyment and grit),

and motivation on L2WTC inside the classroom among Saudi EFL learners. The study revealed that anxiety had the most significant total effect on L2WTC. The author reported that learners' negative emotions (anxiety and boredom) and positive emotions (enjoyment and grit) directly, indirectly, positively, and negatively significantly predicted L2WTC. In a similar vein, Sadoughi and Hejazi (2023) utilised structural equation modelling to investigate the impact of debilitating anxiety on L2WTC in the classroom context of Iranian EFL learners. The study revealed a significant inverse relationship between L2WTC in the classroom and L2 anxiety.

The above-discussed study showed varying levels of students' FL anxiety. This dissimilarity may have resulted from the use of different anxiety tools that solely concentrated on the degree of students' inhibitory anxiety. To address these discrepancies, it is essential to use multiple L2 anxiety assessments that measure not only how intense students' anxiety is but also how it impacts learning by enabling versus inhibiting it. Although some studies have explored the influence of L2 anxiety on L2WTC, most researchers have focused on the L2 classroom context. However, a more rigorous and empirical analysis of FL learners' L2WTC in real-life situations beyond classrooms is necessary. The reason is that intense and dynamic emotional experiences related to L2 anxiety and communication are more likely to occur in everyday encounters rather than within the controlled environment of a classroom. Finally, most L2WTC research has focused on speaking, whereas in Ethiopian FL education, reading comprehension, writing, and grammar are valued higher than listening comprehension and speaking. Therefore, a comprehensive investigation of L2 anxiety and its impact on L2WTC encompasses all four skills in various contexts is required. This is what this study set out to do.

## **METHOD**

This section outlines the methodical procedure we used to collect and examine data. It included the study's design, settings and participants, data gathering instruments, data ablation processes, data analysis methods, and research ethics.

### **Research Design**

The present study employed quantitative methods to test various variables' relationships and predictive effects. We used correlational research design and structural equation modelling (SEM) to examine the extent of associations among four factors. This approach allowed us to identify the strength and direction of these variables' effects on each other (Creswell, 2012).

### **Setting and Participants**

The research was carried out at Mizan-Aman Preparatory School in Ethiopia's southwestern area during the first semester of the 2022-2023 school year. Participants were in their 12th year of high school. The study employed a purposive sampling technique (Creswell, 2012), whereby all students at the school were included to acquire comprehensive insights into the phenomena being investigated. This technique helped develop generalisations relevant to the target demographic, reducing the possibility of missing data points. Six hundred and nine students (352 males and 257 women) willingly consented to participate in the study and completed

the questionnaire within the time limit. The participants ranged in age from 18 to 23 ( $M=20.6$ ,  $SD=.72$ ).

### Instruments

The study utilised Creswell's (2012) established criteria for developing and validating the items. The instruments were developed and validated by generating an item pool from pre-existing tools, implementing content validation procedures, and carrying out construction validation methods. Before commencing the pilot project, we reduced the quantity of items included in the questionnaire. Several items were omitted and altered to match the foreign language learning experiences of high school students in Ethiopia. Experts from Addis Ababa University and Mizan-Tepi University, who were senior academics in Amharic, English language, and literature, helped translate the items into Amharic, the primary language of the participants. In September 2022, after completing the translation, we tested the instruments with four high school teachers and twelve high school students. The pilot study evaluated the items' functionality and appropriateness, simplicity of use, and efficacy. Based on the data collected during the pilot, we removed six items from the L2WTC inside the classroom scale and three from the L2WTC outside the classroom scale. Finally, the following scales were incorporated into our study.

1. *L2WTC inside the classroom*: The L2WTC inside the classroom scale comprised five items adapted from. The scale aimed to assess the extent to which students were willing to communicate in English while doing tasks in classroom settings (e.g., I am willing to talk in group discussions in an English class). The scale's internal consistency was good, as demonstrated by Cronbach's alpha of .83.
2. *L2WTC outside the classroom*: Nagy (2007) developed the five items that comprised the L2WTC outside the classroom scale. The measure was designed to gauge how ready students were to use English in real-life situations (e.g., talking in English with an English-speaking waiter or waitress in a restaurant). With Cronbach's alpha of .80, the scale's internal consistency was strong.
3. *Facilitative anxiety*: This scale comprised four items adapted from Piniel & Csizér (2013; Welesilassie & Nikolov, 2022). Moreover, Welesilassie and Nikolov (2022) validated it in the Ethiopian context. The items assessed how much learners' apprehension enhances language acquisition and performance (e.g., "I am more productive under pressure"). Cronbach's alpha for this scale was also high: .87.
4. *Debilitative anxiety*: The debilitative anxiety scale comprised four items (Horwitz et al., 1986; Papi, 2010; Piniel & Csizér, 2013) and validated by Welesilassie and Nikolov (2022). in the Ethiopian EFL context. The scale aimed to assess how anxiety negatively impacted students' language learning and performance (e.g., When I am nervous, I am less good at English). The scale's internal consistency was excellent, with Cronbach's alpha of .96.
5. *Self-assessed English proficiency*: To assess students' English proficiency, we used the Common European Framework of References for Language (CEFR-2020), which divides language proficiency into basic, independent, and proficient levels. However, since Ethiopia does not have a standardised CEFR, we faced difficulties identifying student competency. As a result, we

came up with a unique evaluation method. We analysed core competencies from textbooks and exam measurements and drew on my extensive experience teaching English in Ethiopia to relate these to the CEFR-2020. This led to categorising students as “basic users,” we evaluated their abilities using seven items on a 'can do' scale that included listening, reading, interaction, and production skills.

## THE PROCEDURE OF DATA COLLECTION AND ANALYSIS

An institutional review board approved this study, and all participants provided informed consent. Early in November 2022, we started the data-gathering procedure. We explained the study's aims, advantages, and data security methods to participants online. The questionnaires were distributed during class; respondents spent 30 minutes completing them on average. The gathered dataset was coded and analysed using IBM SPSS 25, and descriptive statistics such as minimum, maximum, mean, and standard deviation were computed to understand the variables better. The Pearson product-moment correlation coefficient ( $r$ ) was also calculated to determine the existence and significance of correlations among the variables.

## RESULTS AND DISCUSSIONS

This study investigated the links between FL anxiety, L2WTC, and self-assessed proficiency in the context of EFL education in Ethiopia. Table 1 presents the mean and correlation analysis of all variables.

Table 1: Mean and correlation analysis of facilitative anxiety, debilitating anxiety, L2WTC inside and outside the classroom, and self-assessed proficiency in English.

Variables	M	SD	1	2	3	4
1. Facilitative anxiety	2.64	1.39				
2. Debilitative anxiety	3.91	1.18	-.57**			
3. L2WTC inside the classroom	2.71	1.1	.49**	-.18**		
4. L2WTC outside the classroom	2.53	.92	.38**	-.25**	.23**	
5. Self-assessment proficiency	2.34	.87	.50**	-.34**	.38**	.28**

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$

The study initially aimed to investigate the students' L2 anxiety, L2WTC inside and outside the classroom, and self-assessed English proficiency of EFL learners in the Ethiopian context. Descriptive statistics for all variables are presented in Table 1. According to the statistical analysis, students' levels of L2 anxiety were found to be high for debilitating anxiety ( $M = 3.91$ ,  $SD = 1.18$ ) and low for facilitative anxiety ( $M = 2.64$ ,  $SD = 1.39$ ). High levels of debilitating anxiety suggest that stress may hinder their performance and language use. This result is in line with the findings of Authors (2022), who observed a high degree of debilitating anxiety in the same context; however, this finding was in contrast with the results of Alrabai (2022) and Khajavy et al. (2018), who reported a low level of debilitating anxiety. Students may experience debilitating anxiety for a variety of reasons. Horwitz et al. (1986) suggested that elements such as rote memorisation, a lack of interest, a focus on grammar rules, and undue pressure on students may all lead to poor academic accomplishment, which might induce anxiety in students. For example, Ethiopian

students' anxiety may be exacerbated by academic pressure and high expectations. English is a fundamental subject in the Ethiopian education system, and students may be concerned about their ability to meet academic standards and perform well on English language examinations. Moreover, students may fear making errors; they often worry that they may say something incorrectly or be misinterpreted, resulting in shame or embarrassment. Finally, Ethiopia is multicultural, and some citizens may adhere to more traditional beliefs and practices. For these individuals, learning English may be perceived as a threat to their cultural identity or the significance of their native language. These points could potentially lead to cultural and societal conflict.

Students, on the other hand, had a low degree of facilitative anxiety. In the context of English language learning, a high level of facilitative anxiety is generally regarded as more advantageous than a low level. According to Scovel (1978), students who score high on facilitative anxiety (the sort of anxiety that improves performance) are more emotionally prepared to meet and conquer obstacles that many of their classmates may avoid challenges. In other words, rather than allowing their fear to hold them back, these students may channel it into beneficial encounters. They are emotionally prepared to cope with challenges others may find overly intimidating. Authors (2022) found that Ethiopian preparatory students tend to have low levels of facilitative anxiety, which can lead to a lack of motivation and engagement in language learning activities.

Ethiopian EFL students have been shown to have low L2WTC inside ( $M=2.71$ ,  $SD=1.1$ ) and outside ( $M=2.53$ ,  $SD=.92$ ), which may suggest unwillingly engaging them in English communication-based activities. The findings support Lee and Lee's (2019) conclusion that L2WTC was somewhat lacking in and out of the classroom in the Korean EFL context; however, they contradict Peng's (2015) conclusion that Chinese learners had strong L2WTC in and out of the classroom. There might be several reasons underlying students' reluctance to communicate in the classroom. For example, students' FL anxiety and low self-esteem are thought to be contributing factors to students' lack of success and low level of engagement MacIntyre et al. (2001). The research done by Authors (2022) revealed an abundance of anxiety and a lack of motivation among Ethiopian students when English is to be used in the classroom. Anxious students can find class participation difficult due to decreased focus, fear of criticism, and low self-esteem. This can lead to their unwillingness to communicate in the English classes. In Ethiopian EFL instruction, teaching quality is a significant aspect that is always highlighted and can be referred to as practical teaching, instructional quality, or good teaching practices. Ineffective teaching techniques may be a significant barrier, as teachers may not evoke and maintain students' interest or equip them with the abilities and information needed for effective communication. Fear of criticism is another common reason for students to avoid communication in the classroom (Horwitz et al., 1986). Students apprehensive of criticism may hesitate to participate in class discussions, deliver presentations, or pose questions. When many students are in a class, it can also be difficult for teachers to provide individual attention and assistance. For instance, Ethiopian preparatory schools have more than sixty students per classroom. The cultural norms of politeness, deference, and respect for teachers among Ethiopian EFL students may

also hinder their participation in class discussions or interactions with their teachers and classmates. These reasons may lead to challenges in engaging students actively in learning and critical thinking, as they fear that asking questions or seeking clarification may be perceived as a display of disrespect or a threat to the teacher's authority. Similarly, low L2WTC scores outside the classroom can indicate that students do not use their English for authentic purposes, which might impede their language development. Factors such as a lack of exposure to the English language due to a lack of opportunities and resources like ICT, books, and media might affect Ethiopian EFL learners' readiness to communicate beyond their EFL classes. The results mirrored those of Lee and Lee (2019), who found a low L2WTC outside of the classroom, but contradicted those of Zhou et al. (2020), who discovered high levels of L2WTC in both contexts.

The findings reveal that the self-assessed English proficiency of Ethiopian students is below the desired proficiency levels ( $M=2.3$ ,  $SD=.87$ ). This outcome suggests that learners face potential challenges in language learning, which may arise due to several factors such as curriculum effectiveness, teaching methodologies, lack of confidence, inadequate exposure or practice, and language assessment practices.

The second objective of the research study was to investigate the relationships between L2 anxiety and L2WTC and self-assessed English proficiency. The results of the Pearson product-moment correlation coefficient ( $r$ ) are presented in Table 1. The results in Table 1 indicated that there was a statistically significant positive correlation between facilitative anxiety and L2WTC both inside ( $r=.49$ ,  $p<.01$ ) and outside ( $r=.38$ ,  $p<.01$ ) the classroom, revealing that an increase in facilitative anxiety leads to an increase in L2WTC in both contexts and vice versa. Anxiety is typically regarded as a negative emotion, but in the context of second-language acquisition, it can also be advantageous. Facilitative (beneficial) anxiety refers to the type of anxiety that improves performance by heightening focus and attention. Learners become more motivated and involved in the language learning process as their facilitative anxiety level rises (Scovel, 1978). This increased drive may result in an increased readiness to communicate in contexts where they can try to use their new language (MacIntyre et al., 1998). For example, when students experience facilitative anxiety during an in-class discussion activity, they are more likely to engage actively in the dialogue and express their opinions with others. Similarly, students become comfortable talking in English in the classroom and may feel more confident utilising the language in real-world situations.

Debilitative anxiety demonstrated a statistically significant negative correlation with L2WTC inside the classroom ( $r=-.18$ ,  $p<.01$ ). This outcome shows that debilitating anxiety has a negative relationship with and a negative predictive effect on L2WTC in the classroom. Thus, debilitating anxiety inhibits communication, and those who experience it in language classrooms tend to be reticent to speak in English. Debilitating anxiety is a psychological condition that affects all levels of language learners. It is characterised by fear of evaluation and adverse reactions from others, such as being ridiculed or criticised for their dialect or grammatical errors, when using English inside and outside the classroom (Dörnyei, 2005; Horwitz et al., 1986). These anxieties often reduce students' self-confidence and may result in a reluctance



to communicate in the target language. As a result, learners may avoid circumstances where they could communicate, resulting in fewer opportunities to practice and gain confidence in L2 settings. This result is consistent with the findings of Khajavy et al. (2018), Alrabai (2022), and Sadoughi & Hejazi (2023), who all identified a negative relationship between debilitating anxiety and L2WTC in the classroom, indicating that high levels of debilitating anxiety can prevent students from feeling comfortable and engage in classroom language learning activities.

Our findings showed a statistically significant negative connection between debilitating anxiety and facilitative anxiety in the Ethiopian EFL context ( $r = -.25$ ,  $p < .01$ ). As a result of this inverse relationship, when individuals experience more significant facilitative anxiety, their debilitating anxiety decreases, and vice versa. Facilitative anxiety is the sort of anxiety that improves performance by increasing awareness, attention, and motivation. It may help students pay more attention to things and perform better. Debilitating anxiety, on the other hand, has a detrimental impact on performance. It may make people feel overwhelmed, worried, and unable to function well. The findings indicated that students are less likely to feel anxiety that impairs their performance when they experience anxiety that encourages them to do well. Students may worry that they may mess up in front of their peers or instructor, for instance, but if they can turn this worry into a positive outlook and utilise it to encourage themselves, they will probably do better.

L2WTC within and outside of the classroom had a statistically significant positive association ( $r = .35$ ,  $p < .01$ ). This means that students who are more secure and confident to participate in EFL tasks, including discussions, are also more likely to communicate outside of school, and vice versa. This outcome suggests that the classroom environment may significantly impact whether L2 communication occurs outside the classroom. Therefore, we conclude that learners' comfort in making mistakes and expressing themselves in front of peers and teachers and effective teaching methods and supportive environments in the EFL classes can improve learners' L2WTC outside the classroom by boosting their confidence and motivation to take on challenges. Negative experiences with classroom communication, on the other hand, can undermine learners' confidence and deter them from interacting in English outside of class. These findings are like those of Lee and Lee (2019), who indicated that there was a powerful link between L2WTC in Korean EFL secondary school students both in the classroom and beyond.

The research findings revealed a significant association between students' self-estimated English proficiency and two types of anxiety - facilitative and debilitating. The positive correlation coefficient ( $r = .50$ ,  $p < .01$ ) observed between facilitative anxiety and perceived proficiency in English indicated that as students' English skills improved, their facilitative anxiety also increased, potentially enhancing their language acquisition by keeping them alert and focused. On the other hand, the negative correlation coefficient ( $r = -.34$ ,  $p < .01$ ) established between debilitating anxiety and self-assessed English proficiency suggested that higher perceived proficiency in English was linked with lower levels of debilitating anxiety. This finding implied that as students' confidence in their English competence grew, the anxiety that may impair their performance decreased. These noteworthy results



provided valuable insights into the complex relationship between language proficiency and anxiety in the learning context.

## **CONCLUSIONS AND PEDAGOGICAL IMPLICATIONS**

The study aimed to investigate the relationship between learners' L2 anxiety, L2WTC, and their self-assessed English proficiency in Ethiopia. The results indicated that the learners experienced high levels of anxiety that hindered their performance and low levels of anxiety that enhanced their performance. Ethiopian students demonstrated low WTC both inside and outside of the classroom, as well as low self-assessed English proficiency. These results could be attributed to anxiety, low self-esteem, ineffective teaching methodologies, fear of criticism, and cultural norms that hindered their communication. The study also found that the learners with high levels of anxiety that enhanced their performance had a positive correlation with their WTC and self-assessed English proficiency. Conversely, learners with high levels of anxiety that hindered their performance had a negative correlation with their WTC and self-assessed English proficiency. Furthermore, the study found that learners with high levels of anxiety that enhanced their performance had low levels of anxiety that hindered their performance. WTC, both inside and outside the classroom, were positively associated, indicating that classroom experiences influence communication outside the classroom. The study concluded that creating a positive classroom environment could enhance WTC inside and outside the classroom.

Considering the results, the following educational conclusions might be made for Ethiopian English language teachers. It is recommended that teachers use a range of techniques to reduce learners' anxiety and foster their desire and readiness to communicate in English. To start, teachers should establish and convey suitable language learning goals and adapt their teaching methods to the needs and preferences of each learner. It is also crucial to provide a supportive learning environment that acknowledges accomplishments, offers helpful criticism, and establishes an accepting space for expression (Zhou et al., 2020)—introducing pupils to progressively challenging tasks gradually might also help students feel less anxious and improve their communication skills. Incorporating elements of Ethiopian culture and life may, in my experience, improve student engagement and foster a more profound understanding since Ethiopians are sensitive to their cultural identities. Teachers should use techniques like surveys, observations, and interviews to detect anxious students and modify their teaching methods appropriately (Horwitz, 2010). The ability and confidence of learners may also be boosted by giving them chances to use their English outside of the classroom, such as by setting up English-speaking situations and using technology for communication (MacIntyre et al., 2001).

## **LIMITATIONS AND FUTURE RESEARCH**

The current research involved a limited number of students at a single preparatory school; consequently, the findings cannot be generalised to other schools. Future studies relating anxiety and L2WTC should include a more extensive variety of concerns, and researchers should study cultural variations in anxiety levels and

L2WTC. Qualitative data could offer more detailed insights into students' lived experiences to find out how their debilitating anxiety could be lowered, and facilitative anxiety could be boosted and lead to more authentic use of English. There is a need to explore the usefulness of new technologies like virtual reality and AI-assisted communication training in minimising student anxiety and boosting their ability and willingness to communicate freely. In addition, researchers should study the influence of other identification indicators, including gender, age, and social status, on anxiety and L2WTC.

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