

**Working by hindsight: A mixed-method process evaluation of the Norwegian ACTNOW RCT
with recommendations for university-practitioner partnerships and early childhood educator
professional development**

by

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Abstract

This thesis presents a mixed-method process evaluation of the ACTNOW randomized controlled trial (RCT), which aimed to enhance early childhood educator professional development through university-practitioner partnerships (UPPs) in Norway. The ACTNOW project focused on promoting physical activity (PA) in preschools via a collaborative model involving pracademics (i.e., academics engaged in practical problem solving) and preschool staff. The intervention included a seven-month professional development program supported by digital resources, on-site visits, and ongoing support. Quantitative data from surveys and qualitative data from interviews and focus groups revealed high levels of practitioner engagement, perceived improvements in children's PA, motor skills, and cognitive development, and staff integration of ACTNOW practices into daily routines. Key findings highlighted the importance of policy alignment, relational trust, and flexible intervention design. Practitioners valued the co-creation process and reported immediate, visible outcomes reinforcing their commitment to the work. The study underscores the role of pracademics in fostering responsive, context-sensitive partnerships and suggests that UPPs can serve as infrastructures for sustained pedagogical transformation. Limitations include potential recall and social desirability biases, and the specificity of the Norwegian context. Future research should explore mechanism activation across diverse settings using realist or other evaluation frameworks along with organizational theories. Overall, ACTNOW demonstrates that well-designed UPPs can bridge research and practice, empower educators, and promote sustainable change in early childhood education.

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In the Attics of My Life

In the attics of my life
Full of cloudy dreams unreal
Full of tastes, no tongue can know
And lights, no eye can see
When there was no ear to hear
You sang to me
I have spent my life
Seeking all that's still unsung
Bent my ear to hear the tune
And closed my eyes to see
When there were no strings to play
You played to me
In the book of love's own dream
Where all the print is blood
Where all the pages are my days
And all my lights grow old
When I had no wings to fly
You flew to me
You
Flew
To me
To me
In the secret space of dreams
Where I dreaming, lay amazed
When the secrets all are told
And the petals all unfold
When there was no dream of mine
You dreamed of me

Robert Hunter/Jerry Garcia

In Memoriam

This work is presented in memoriam of the families, friends, and communities of those who were injured or lost their lives at Virginia Tech on April 16, 2007. Your and our collective loss has continued to help me understand what it means to be a Hokie, *Ut Prosim* - that I may serve others, and what it means to prevail.

Dedication

I dedicate this work to Jay A. Mancini. Prudence and justice dictate that I acknowledge that nothing my meager ability to commit my thoughts to words could adequately capture the extent of Jay's effect on my life. I came to Norway, where this work was completed, in no small part because of Jay's influence. To wit, I recall his returning from a trip to Italy back to Blacksburg, VA where I was working in his lab and pursuing my degrees in the Human Development program at Virginia Tech more than a decade ago. I can still see his wide grin and proclamation, "Wiles, it's really something to travel the world on someone else's dime". Here I am on the taxpayers' dimes.

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Introduction

Interactions between university research teams and school practitioners have long been recognized as a critical driver for advancing applied research and practice (Soland et al., 2024). University-practitioner partnerships (UPPs) aim to bridge the gap between academic research and on-the-ground practice, promoting the co-creation of interventions such as those targeting physical activity (PA) that address practical needs while generating actionable evidence (Cooper et al., 2020; Guerrero-Hernández & Fernández-Ugalde, 2020; Sapkota et al., 2024). Partnerships such as these have received increasing attention due to their potential to foster innovation, enhance policy alignment, and address many of the complex challenges faced by modern education systems (Niven et al., 2023; Williamson et al., 2019; Loncarevic et al., 2021). Additionally, funding for these types of engaged research approaches has increased over the last several years (Arce-Trigatti et al., 2018).

Contextual Factors and Traditional Approaches to University-Practitioner Partnerships

The necessity of UPPs extends across research, practice, and policy. At the research level, they offer a mechanism to produce contextually relevant evidence, countering critiques of top-down, prescriptive interventions that often disregard the lived realities of educators and students (Farrell et al., 2022a; Fischer-Schöneborn & Ehmke, 2023). From a policy perspective, UPPs align with priorities at both local and national levels, facilitating the translation of evidence into actionable strategies that support educational practice reform (Sapkota et al., 2024). For practitioners, these partnerships provide opportunities to engage in meaningful professional development (PD), fostering intrinsic motivation and enhancing their sense of agency in the implementation of interventions (Farrell et al., 2022a, Farrell et al., 2022b).

Despite their potential and some recent successes, UPPs remain contingent on local and national contextual factors, including alignment with policy priorities and the previous

experiences of school personnel (Arce-Trigatti et al., 2018). Local and national policies play a pivotal role in shaping the receptivity and feasibility of partnership-driven initiatives (Sapkota et al., 2024). However, entrenched mistrust stemming from prior experiences with traditional, top-down approaches often impedes collaboration (Farrell et al., 2019; Farrell, 2022a). For instance, interventions that prioritize fidelity over flexibility can leave practitioners feeling disempowered, particularly when enactment is prescriptive and fails to accommodate the nuances of diverse educational settings (Hawe, 2015; Jarl et al., 2024).

Traditional approaches to PA and other research-practice collaborations have frequently emphasized the primacy of researcher expertise, relegating practitioners to assigned roles in the implementation process. These approaches often view fidelity as paramount, with limited attention given to the practicality of interventions within existing pedagogical frameworks (Farrell et al., 2022b; Fischer-Schöneborn & Ehmke, 2023). The resulting disconnect has contributed to a lack of pracademics leveraging the cognitive and creative strengths of practitioners, leading also to challenges in realizing the short-term benefits necessary to sustain long-term engagement (Jarl et al., 2024).

In response, progressive approaches to UPPs emphasize context-specific, co-developed solutions that respect the expertise of practitioners and prioritize flexibility over rigid fidelity (Farrell et al., 2021; Chalkley et al., 2024; Hawe, 2015; Jago et al., 2023). These partnerships aim to identify the intersection of higher education pracademics' and practitioners' objectives, creating interventions that are both practical and impactful (Chalkley et al., 2024). *A priori* involvement of practitioners in the design process tends to enhance the relevance and feasibility of interventions, fostering mutual respect and sustainable collaboration (Farrell et al., 2022a).

This study aimed to understand the UPP process between early childhood educators and pracademics (Friesen, 2022) in the context of a PA intervention. Pracademics, while situated in

the academy, focus their scholarship on the complex problems practitioners face in the course of their daily work. Pracademics bridge the boundary between research and practice. This study occurred with pracademics from a preservice teacher education university in Norway in the context of a Randomized Controlled Trial (RCT) designed to extend and elevate the use of PA in preschools' pedagogical practices.

By exploring the contextual, methodological, and relational dimensions of these partnerships and how the practitioners responded to their enrollment in professional development implemented as part of the UPP, the study provides actionable insights for enhancing the design and implementation of UPPs, especially within the PA professional development content creation and delivery arenas. This dictates starting out by describing the *Active Learning Norwegian Preschool(er)s (ACTNOW)* project which necessitated the UPP.

Physically Active Learning

Physically Active Learning (PAL) refers to integrating movement into academic instruction during lesson time. Rather than limiting to physical education classes or recess, PAL embeds purposeful movement within core subjects such as mathematics, language arts, and science. This approach challenges traditional sedentary classroom norms and leverages the cognitive, physical, and social benefits of movement to enhance learning outcomes (Chalkley et al., 2024; Daly-Smith et al., 2020).

Rationale and Benefits

PAL is grounded in evidence that PA can support attention, memory, and executive function, which are critical for academic success. Studies show that PAL increases students' engagement, motivation, and time on task without negatively impacting academic achievement (Bacon & Lord, 2021; Norris, van Steen, Direito, & Stamatakis, 2020). Meta-analytic findings indicate that physically active lessons substantially increase lesson-time PA and can produce

small but meaningful improvements in educational outcomes (Norris et al., 2020). Beyond cognitive benefits, PAL reduces sedentary time and contributes to daily activity recommendations, while also promoting social interaction and emotional well-being in classrooms (Bacon & Lord, 2021; Chalkley et al., 2024).

Current Research Landscape

Over the past two decades, PAL research has grown in response to international health and education priorities that aim to reduce physical inactivity and reimagine learning environments. The field is shifting from a narrow focus on minutes of activity toward a broader view that positions PAL as a pedagogical innovation that supports holistic development and aligns with curriculum goals (Mandelid, et al. 2023; Chalkley et al., 2024). Conceptual analyses describe PAL as inherently inter- and transdisciplinary, because it synthesizes knowledge from health and education to address real-world classroom challenges and opportunities (Mandelid, 2023). At the same time, classroom-based observations of experienced teachers show considerable variety in how PAL is enacted, with intensity and volume of activity influenced by setting, task design, and collaboration structures (Johansen et al., 2024).

Implementation and Challenges

Adoption of PAL is shaped by teachers' beliefs, professional identities, and school contexts. Some teachers adopt PAL to comply with policy, others to innovate, and others because it aligns with their prior experiences, which implies that professional development should be tailored to varied motivations and needs (Lerum et al., 2021; Teslo et al., 2023). System-level barriers include competing curriculum demands, limited time, and lack of training or resources. Multi-stakeholder guidance points to practical priorities such as building teacher confidence and competence, developing communities of practice, and aligning policy and initial teacher education with PAL goals (Daly-Smith et al., 2020; Chalkley et al., 2024). Implementation

science offers useful tools for planning, adapting, and evaluating PAL in context, including assessing readiness for change and selecting strategies that fit school conditions (Prathivadi et al., 2021; Tufts Clinical and Translational Science Institute [CTSI], 2024).

Global Perspectives and Future Directions

International efforts increasingly frame PAL as movement-centered pedagogy that integrates health and education aims, supported by coherent policy and whole-school approaches (Chalkley et al., 2024). Future work should strengthen long-term evidence on academic and health outcomes, document cost and sustainability, and address equity by ensuring benefits for diverse learners and settings. Promising directions include rigorous hybrid trials that evaluate both educational outcomes and implementation processes, as well as professional development models that center on pedagogy and co-design with teachers (Norris et al., 2020; Teslo et al., 2023).

The Active Learning Norwegian Preschool(er)s (ACTNOW) Project and Context

In Norway, as elsewhere, preschools have increasingly been recognized as a strategic setting for promoting healthy behaviors, given concerning trends in inactivity and sedentary lifestyles among young children in recent years (Dohrn et al., 2024). A growing number of public health interventions have, therefore, been implemented in preschools to promote PA (e.g., Active Kindergarten – Active Children, Early Stockholm Obesity Prevention Project (Early STOPP)). The ACTNOW project was one such initiative designed to address concerns about young children's sedentary lifestyles by offering in-service professional development in PA to preschool practitioners (Aadland et al., 2020). As cultural context shapes practitioners' values and beliefs, Norway is known for its whole-child-centered pedagogy, which values the outdoors and PA as part of preschoolers' daily lives (Bergqvist-Norén et al., 2022). Moreover, participation in *development projects*, the term used for practitioners' participation in university research, RCTs,

and other school-based research, is a policy requirement for kindergartens in Norway. Hence, Norwegian preschool practitioners, unlike those in many non-Nordic countries, are accustomed to working with colleagues as a professional learning community.

The ACTNOW project was designed as a two-arm (intervention, control) cluster randomized controlled trial (RCT) nested within two levels: staff and children (Aadland et al., 2020). The program logic model was built on a train-the-trainer model, and the preschool director and pedagogical leaders (i.e., selected lead teachers) in departments enrolled in ACTNOW formed a Project Lead Team (PLT). Members of the team participated in a 7-month face-to-face continued professional development (CPD) program structured within a 15-credit model, including skill-building and knowledge gains to build competence to promote PA, motor skills, and cognition in preschoolers. The CPD program was supported by online webinars, a digital PA toolbox, portable movement and learning equipment, and on-demand support and researcher follow-up over a period of one and a half years.

The intervention spanned 18 months, with two separate waves: one from 2019 to 2021 and the other from 2020 to 2022. A total of 23 different preschools received the intervention across these waves. Of the 1533 invited children from 46 preschools, 1265 agreed to participate (recruitment success of 82.1 % of preschools and 82.5 % of children). Of these, 822 children were available at the 18-month follow-up, as the 5-year-old children at baseline started school ($n = 443$). The study was conducted in two waves, and data used in the present study were collected at baseline (September/October in 2019 (wave 1) and 2020 (wave 2)) and at 18-month follow up (April/May/June 2021 (wave 1) and 2022 (wave 2)) (Aadland et al., 2020; Aadland et al., 2024; 2025). Professional development training was directed at preschool directors and teachers within each department of the intervention preschools.

While participating in the CPD, the members of the PLT were expected to build the competence of their professional learning community and enhance the quality and quantity of PA within their preschool's daily routine. For parsimony, the researching teacher educators are referred to henceforth as *pracademics*. As such, the *pracademics* worked closely with only 2–6 practitioners in each preschool, depending on its size. The transdisciplinary team at the university delivering the professional development represented the disciplines of public health, pedagogy, and organizational leadership.

Compulsory participation in development projects (i.e., RCTs and other school-based research) represents an essential difference between the Norwegian school system and that in the United States. Many kindergarten practitioners have experience with previous *development projects*, a term used to describe kindergartens' participation in university-based research.

Purpose and Justification

The purpose of this study is to conduct a process evaluation of how preschool practitioners experienced and responded to the ACTNOW CPD and UPP. Specifically, this work investigates how contextual, relational, and design-related factors interact to further understand practitioner ownership, uptake, and sustained engagement. Findings and results from this work could prove valuable for both researchers and practitioners to both support and optimize UPPs in the PA domain and beyond. Moreover, lessons learned should provide justification for avenues for future research and theoretical models.

Method

The study employed a mixed methods approach to evaluate the process of the intervention, utilizing surveys and qualitative data collection methods (i.e., interviews and focus groups).

Method

Study design and participants

Evaluating UPPs attempting to address intricate public health problems in diverse contextual systems presents significant challenges. Doing so requires in-depth knowledge of the problem and system, as well as evaluation methods that do what they should do: Namely, evaluate the effects of implementing an intricate intervention within a multipart, real-life system. Since RCTs do not primarily focus on explaining why an intervention works or not in a particular context or for a particular group of participants, examining how ACTNOW's pracademics and the UPP were received and responded to proves critical to advance the next phase of this line of research (i.e., MoveEarly, Norwegian Research Council Project Code 325880). As required for inclusion in products resulting from the original funding by the Norwegian Research Council, this paper presents data from the process evaluation of ACTNOW, conducted in accordance with the UK Medical Research Council's (MRC) guidelines for developing and evaluating complex interventions (Skivington et al., 2021).

Qualitative Procedures. The process evaluation employed a case study design involving four (out of 21) intervention preschools (Aadland et al., 2020). These participants, i.e., the educators trained in ACTNOW at these preschools, were purposively recruited to capture diversity in terms of size, geographic location, and project uptake. In Norway, a village is considered a location without amenities (e.g., gas, grocery) and a small town is a remote location with amenities. All members of the PLT in each preschool were recruited to take part in the study. This included four directors, two assistant preschool directors, and eight pedagogical teachers. In addition, five assistants were recruited to participate in focus groups to also explore the uptake of ACTNOW among practitioners not enrolled in the CPD program (see Table 1). Data were collected January through February 2021 for the first wave, and September through October 2021 for wave 2.

Table 1. Participation and data collection method with pseudonyms in Norwegian

Preschool	Context	Role	Pseudonym	Gender	Individual interview	Focus group
I	Village	Director	Lise	F	I	
		Assistant director	Per	M	I	
		Pedagogical Leader	Kari	F	I	I
		Pedagogical Leader	Tonje	F	I	I
		Assistant	Maja	F		I
		Assistant	Mette	F		I
II	Village	Director	Lim	F	I	
		Pedagogical Leader	Trine	F	I	I
		Pedagogical Leader	Alise	F	I	I
		Assistant	Eli	F		I
		Assistant	Berit	F		I
III	Small town	Director	Solveig	F	II	
		Assistant director	Nina	F	I	
		Pedagogical Leader	John	M	II	
		Pedagogical Leader	Erik	M	II	
IV	Small town	Director	Tale	F	I	I
		Pedagogical Leader	Tone	F	I	I
		Pedagogical Leader	Synne	F	I	I
		Assistant	Elisabeth	F		I

Note = Wave 1; II = Wave 2. M/F = Male or Female

Sample

Sixty-three out of 77 employees (82%) who participated in the ACTNOW PLTs across two waves answered the survey: Wave 1 (2019–2021) had 20 participants and Wave 2 (2020–2022) had 43 participants. In addition to the survey, qualitative data were collected through

interviews and focus groups conducted in two phases. The first wave of data collection took place in January 2021, while wave 2 responses were gathered in September 2021.

Quantitative Procedures.

To evaluate the process of program planning and implementation, a 19-question survey, with a total of 45 response choices, was delivered to PLT members at the conclusion of the intervention period. Response rates for the survey ranged between 90% and 100% ($N = 57\text{--}63$) across the 63 responses. The surveys were delivered in a paper-based format and administered in the respondents' native language to ensure accessibility and accurate responses. Survey responses were hand-entered into a SPSS data file by ACTNOW researchers. Data about the participants was limited to the kindergarten identification number, the municipality of the kindergarten, staff identification numbers (individually assigned by the research team).

Retrospective Perceptions of ACTNOW, PA, and Kindergarten Context

Each PLT was asked eight survey questions about the process of the ACTNOW intervention, four were retrospectively inquiring about pre-intervention conditions (*How do you remember the atmosphere for participation in ACTNOW in the staff group before it started? How would you characterize your kindergarten's work with PA before they joined ACTNOW? To what extent would you say that you received sufficient information about ACTNOW before starting?* and *To what extent would you say that PA was an area of focus in your kindergarten before they joined ACTNOW?*). All questions used a five-point Likert-type scale (1-5) with different response options as shown in the following table. These questions were constructed for the evaluation of this project specifically to understand the elements of interest to the research team. The next set of questions focused on the delivery of the information for ACTNOW implementation (e.g., *To what extent would you say that you received sufficient information about ACTNOW before starting?*), individual and peer perceptions of PA (e.g., *I think PA is an*

important part of the daycare center; Most of my colleagues think that PA is important in kindergarten), and the kindergarten context (e.g., *How do you remember the atmosphere for participation in ACTNOW in the staff group before it started?*). Questions and response choices are provided in Table 1.

Table 2. Retrospective Perceptions of ACTNOW, PA, and Kindergarten Context

Question	Response Choices
1) What do you think of your nursery having participated in ACTNOW?	1) Like it very much 2) Like it 3) Neither like nor dislike 4) Do not like 5) Do not like at all
2) How do you remember the atmosphere for participation in ACTNOW in the staff group before it started?	1) Very good 2) Pretty good 3) Neither good nor bad 4) Pretty bad 5) Very bad
3) What do you think the mood for participation in ACTNOW in the staff group is today?	1) Very good 2) Pretty good 3) Neither good nor bad 4) Pretty bad 5) Very bad
4) To what extent would you say that you received sufficient information about ACTNOW before starting?	1) <i>To a Very Large Extent</i> 2) <i>To a Large Extent</i> 3) <i>To a certain extent</i> 4) <i>To a Small Extent</i> 5) <i>To a Very Small Extent</i>
5) How would you characterize your kindergarten's work with PA before they joined ACTNOW?	1) Very good 2) Pretty good 3) Neither good nor bad 4) Pretty bad 5) Very bad
6) To what extent would you say that PA was an area of focus in your kindergarten before they joined ACTNOW?	1) <i>To a Very Large Extent</i> 2) <i>To a Large Extent</i> 3) <i>To a certain extent</i> 4) <i>To a Small Extent</i> 5) <i>To a Very Small Extent</i>
7) I think PA is an important part of the daycare center.	1) Agree a lot 2) Agree 3) Neither agree nor disagree 4) Disagree 5) Disagree a lot

Perceptions of Barriers and Facilitators to ACTNOW Uptake

Two separate questions asked participants to choose up to five barriers and facilitators to ACTNOW implementation as shown in Table 2. Eleven responses to identifying barriers were provided as facilitators and barriers (e.g., *We have good outdoor facilities/We do not have good enough outdoor facilities*). Participants were asked to choose up to five facilitators and up to five barriers. These facilitators and barriers were provided by the research team for the ACTNOW process evaluation.

Table 3. Barriers and Facilitators to ACTNOW Implementation

Facilitators	Barriers
Most children enjoy PA.	Some children do not enjoy PA.
I feel competent to implement ACTNOW.	I do not feel competent to implement ACTNOW.
I am motivated to spend time on ACTNOW.	I am not motivated to spend time on ACTNOW.
ACTNOW can easily be combined with other subjects.	Focusing on ACTNOW takes time away from other subjects.
ACTNOW can easily be combined with free play.	Focusing on ACTNOW takes time away from free play.
The director/management encourages ACTNOW.	The director/management does not support ACTNOW.
My department is motivated for ACTNOW.	My department is not motivated for ACTNOW.
We have good indoor facilities.	We do not have adequate indoor facilities.
We have good outdoor facilities.	We do not have adequate outdoor facilities.
We have good equipment.	We do not have adequate equipment.
Good weather makes focusing on ACTNOW easy.	Bad weather limits focusing on ACTNOW.

Discrete Perceptions of ACTNOW Implementation

A short battery of retrospective questions regarding facilitators and barriers after the end of the project's implementation asked discrete, dichotomous questions (i.e., yes/no) about their experiences with ACTNOW: *We have had time to focus on ACTNOW; ACTNOW has contributed to a better everyday life in the kindergarten; Inadequate clothing for the children has limited us in focusing on ACTNOW; COVID-19 and infection control measures have limited us in focusing on ACTNOW; The kindergarten routine is too hectic, It is difficult to keep control of the children during PA; Some children have difficulties with PA*). See Figure 1 for results.

These were not forced-choice questions, as respondents were asked to choose up to five of these items. The rationale was that the facilitators would indicate which items were most important in success, while the barriers would indicate which items hindered success would

represent differences (e.g., *I am motivated to spend time on ACTNOW as a top facilitator and My department is not motivated for ACTNOW as a barrier*).

Project Lead Team Members' Perceptions of ACTNOW's Effects on Children

An additional question with seven items asked about perceptions of how ACTNOW changed interactions in the school on a five-point Likert-type scale (i.e., *To what extent do you think that ACTNOW approaches: affect the children's well-being in the nursery; improve the interaction among children; improve the interaction between adults and children; improve the children's motor skills; improve the children's health; improve the children's attention and ability to concentrate; improve the children's learning*) (see Table 3).

ACTNOW Intervention Model Elements

To inform future research about baseline familiarity with the four key elements of ACTNOW, responses were measured on a four-point Likert-type scale (i.e., 1 = *To the Greatest Degree*, 4 = *To the Least Degree*). The question had four items focusing on children's behavior and development, representing the four domains on which the ACTNOW intervention focused: *Moderate to Vigorous PA (MVPA)*; *Motor Skill Development*; *Cognitive Engagement through PA*, and; *Physically Active Learning*. Descriptive statistics are presented in Table 5.

The next question asked about how closely the PLT felt they met the goals for children's activity as targeted by ACTNOW (i.e., *Tick the components in ACTNOW that you think your department/kindergarten reaches in relation to the targets shown in the figure below*). Choices included: *PA with moderate to high intensity – 60 minutes per day*; *Motor skills challenging activity – 90 minute per week*; *Cognitively engaging physically active play – 90 minutes per week*; *Physically active learning – 90 minutes per week*. Descriptive statistics are presented in Tables 4 and 5, and Figure 2 in the results section below.

The PLT members were also asked about which ACTNOW elements will be continued in the future (i.e., *Which components are you most likely to continue?*) using a dichotomous yes/no response for each of the four elements.

Qualitative Procedures

Qualitative data were generated using semi-structured interviews and focus groups. One month into the intervention, in January 2021, semi-structured, individual interviews were held with preschool directors and pedagogical leaders participating in the CPD program. All interviews were conducted by the university faculty member responsible for evaluating the ACTNOW project and lasted between 50 and 80 minutes. The interview schedule provided predetermined but not standardized questions, exploring practitioners' goals for ACTNOW, their responses to the program, experiences implementing PA into daily practices, collaboration with the university team, and perceptions of the support they received.

During the initial phase, 13 in-depth Zoom interviews, due to the COVID-19 pandemic, were conducted with eight pedagogical leaders, four directors, and one joint interview with a director and assistant director. Nine months later, after completing the 7-month CPD program, follow-up data were collected using either face-to-face focus groups or individual interviews, depending on preschool preference. This included three focus groups and three in-depth interviews with two pedagogical leaders and a director.

Transcripts were coded independently by two researchers, one in English and one in Norwegian, as one was from Norway and coded in her native language and the other was a native English speaker with limited Norwegian proficiency. Analysis occurred through thematic analysis (Strauss, 1987), adhering to established recommendations (van Nes et al., 2010; Castleberry & Nolen, 2018) for this method of qualitative research involving language translations. To ensure reliability, the coders convened regularly to discuss their independent

coding and reconcile any differences. Braun and Clarke's (2019) six-phase reflective thematic analysis (RTA) likewise guided the analysis. The author and the university faculty member responsible for evaluating the ACTNOW project read all transcripts for familiarization. They met regularly to discuss translations, coding, and to reconcile differences.

Lincoln and Guba (1985) outline four major domains to establish trustworthiness of qualitative data (i.e., *credibility*, *transferability*, *dependability*, and *confirmability*). The credibility domain was well established, as the relationships with the UPPs were positive, and the person conducting the interviews and focus groups was not connected to the implementation team. In terms of transferability, these data were collected in the Norwegian school systems, thus transferability may be limited to a certain extent. Dependability, indicating that the findings are consistent and could be repeated, serves as a strength in these data, as only four of the qualitative data sources were used for this study, but the larger data set reflected shared experiences. Confirmability, that is, establishing that these data and analyses are shaped by the participants and not because of the researchers' interests, appears to have been met given the questions, and that the evaluation team was separate from the implementation team. Further, coding occurred by two researchers with decades of experience in qualitative coding, and neither of them had any stake in the findings.

Codes were grouped into four overarching areas: *Alignment with the National and Local Policy Context*, *Collaborative Orientation and Co-Development Process*, *Intervention Characteristics*, and *Immediate and Visible Outcomes*. Through further collaboration, themes were refined into one overarching theme about the sensitive, responsive approach of the pracademics, with associated sub-themes identified (see Table 19). Selected quotations were translated into English and associated with their pseudonyms (See Figure 1.).

After the researchers' initial examination, they decided to analyze the data from directors, pedagogical leaders, and assistants, as well as the data from the two rounds of data collection, as one dataset to elicit temporal and holistic perspectives on the practitioners' experiences of the UPP/ACTNOW project.

Results and Findings

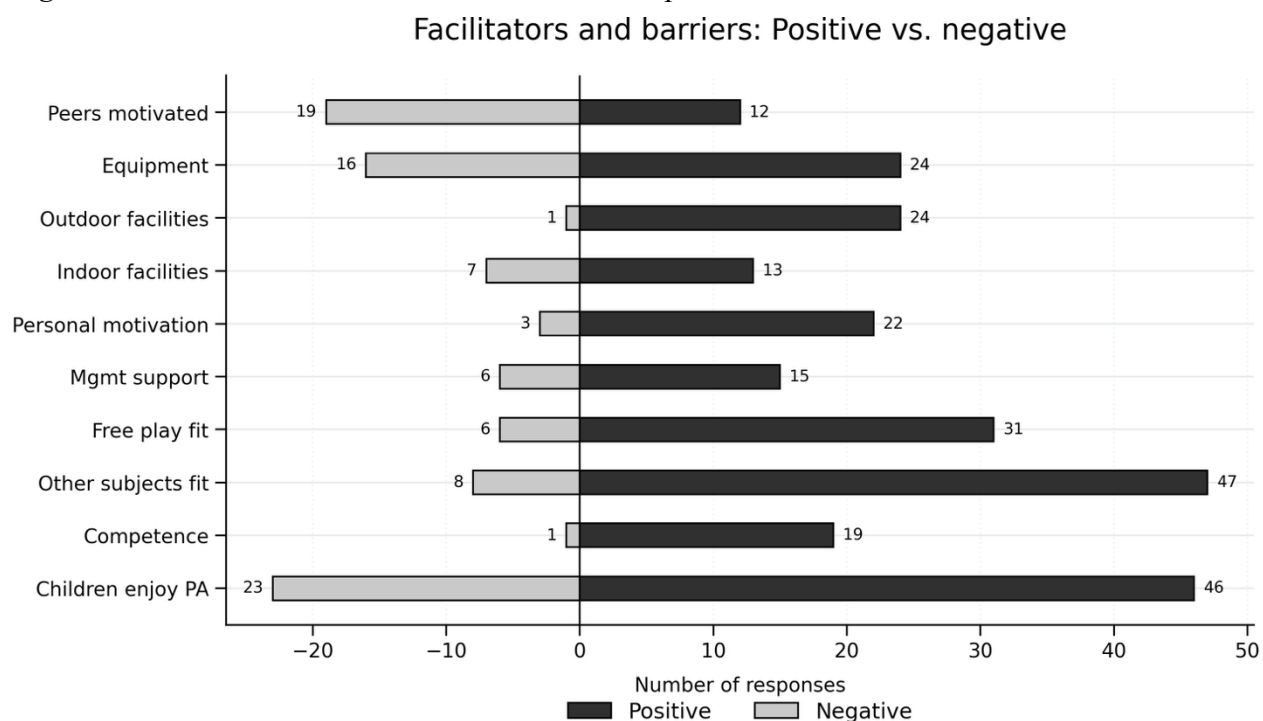
Results (i.e., quantitative analyses) and findings (i.e., qualitative analyses) indicate that PLT members held largely positive views of the ACTNOW UPP, the intervention's process and content, and their intentions to continue incorporating ACTNOW into their curricula.

Results

Quantitative results are presented in this section. Due to the nature of the question design and a lack of variability in many of them, analyses were conducted and are provided in the form of descriptive statistics only.

The Figure 1 below presents responses to paired questions about facilitators and barriers related to ACTNOW implementation, asked in positive and negative forms. In the departmental motivation domain, 19 respondents indicated that others in their department are not motivated for ACTNOW. At the same time, twelve reported that their colleagues are motivated, a difference of seven in favor of a perceived lack of motivation. However, when asked about personal motivation, 22 respondents expressed individual motivation to spend time on ACTNOW, compared to just one who did not, yielding a highly positive difference of 21.

Figure 1. Facilitators and barriers to ACTNOW implementation



Further, regarding equipment, 16 respondents stated they have good equipment, compared to only three who reported insufficient equipment, indicating a positive difference of 13. Outdoor facilities were viewed as adequate by 24 respondents, while only one felt they were inadequate, showing a substantial positive margin of 23. Indoor facilities received more mixed responses: 13 found them good, whereas seven found them insufficient, reflecting a more minor positive difference of six.

Director or management encouragement was also skewed positively, with 15 respondents feeling encouraged and none reporting discouragement. Regarding time allocation, six participants believed ACTNOW takes time from free play, while 31 felt it could be easily combined with it, a positive difference of 25. Similarly, eight thought ACTNOW detracts from other subject areas, while 47 believed the intervention integrates well with existing subject areas, revealing a large and positive difference of 39.

Finally, PTL confidence in implementing ACTNOW was high, with 19 respondents feeling competent and only one expressing self-doubt, a positive difference of 18. Finally, 46 respondents said most children enjoy PA, while 23 indicated that some do not, resulting in a net positive difference of 23. Overall, these data show more positive than negative perceptions across nearly all categories, particularly in implementation, individual motivation, quality of equipment, and perceptions of children's enjoyment of PA.

The findings in Table 4 suggest mixed perceptions of ACTNOW and the conditions surrounding its implementation. Agreement was lowest for *Inadequate clothing for the children has limited us in focusing on ACTNOW*, and *It is difficult to keep control of the children during PA*, indicating that these challenges were not common across participating kindergartens. Similarly, only a small proportion of staff felt that they *have had time to focus on ACTNOW*, suggesting time constraints were a barrier.

In contrast, higher levels of agreement were found for contextual limitations and benefits. Several respondents agreed that *Covid-19 and infection control measures have limited us in focusing on ACTNOW*, highlighting the lingering impact of the pandemic. Likewise, many agreed that *Some children have difficulties with PA*, pointing to individual-level barriers to participation.

At the same time, staff recognized benefits. More than one-third of respondents agreed that *ACTNOW has contributed to a better everyday life*, indicating positive perceptions of the program's impact. The highest level of agreement was observed for *The kindergarten routine is too hectic*, reflecting structural and organizational challenges that may constrain implementation.

Table 4. Post-Intervention Discrete Facilitators and Barriers

Retrospective thoughts about ACTNOW	N	Percent	SD
We have had time to focus on ACTNOW	63	17%	.383
Some children have difficulties with PA	63	33%	.475
It is difficult to keep control of the children during PA	63	5%	.215
Covid-19 and infection control measures have limited us in focusing on ACTNOW	63	29%	.455
Inadequate clothing for the children has limited us in focusing on ACTNOW	63	2%	.126
ACTNOW has contributed to a better everyday life	63	38%	.490
The kindergarten routine is too hectic	63	43%	.499

Table 5 below summarizes participants' perceptions of the effects of ACTNOW on children's social, physical, and cognitive outcomes in the nursery context. Overall, responses indicate consistently favorable perceptions across domains, suggesting broad perceived effectiveness of the intervention.

Perceived effects were strongest for outcomes aligned with the PA focus of ACTNOW, particularly children's motor development and health, which elicited the most favorable evaluations and demonstrated relatively low variability in responses. These findings indicate a high level of consensus among participants regarding ACTNOW's effectiveness in promoting physical competencies.

ACTNOW was also perceived as positively influencing the social environment, including children's well-being and the quality of interactions both among children and between adults and children. Together, these results suggest that the intervention may support not only physical outcomes but also relational and psychosocial aspects of the nursery setting.

Perceptions of cognitive and learning-related outcomes, including attention, concentration, and learning, were also generally positive, though responses exhibited

comparatively greater dispersion. This pattern may reflect more variable implementation or contextual influences affecting cognitive engagement relative to physical outcomes.

Taken together, the results indicate that ACTNOW was perceived as having multidimensional benefits, with the strongest and most consistent effects observed in domains directly related to PA and motor development.

Table 5. Perceptions of ACTNOW effects: Means Table

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
AN affects the children's well-being in the nursery?	63	1	5	1.95	.771
AN improves the interaction between the children?	63	1	5	2.00	.718
AN improves the interaction between adults and children?	63	1	5	1.95	.771
AN improves the children's motor skills?	63	1	3	1.40	.583
AN improves children's health	63	1	4	1.46	.643
AN improves the children's attention and ability to concentrate?	62	1	4	2.05	.777
AN improves the children's learning?	62	1	4	2.02	.757

Note: AN = ACTNOW; 1 = Strongly agree, 3 = Neutral, 5 = Strongly disagree

Figure 2 represents responses to the question, *which components in the ACTNOW model do you think represent, to the greatest extent, something new in relation to previous work with PA in your kindergarten?*

Figure 2. Perceptions of New PA Elements in ACTNOW in Relation to Previous Work

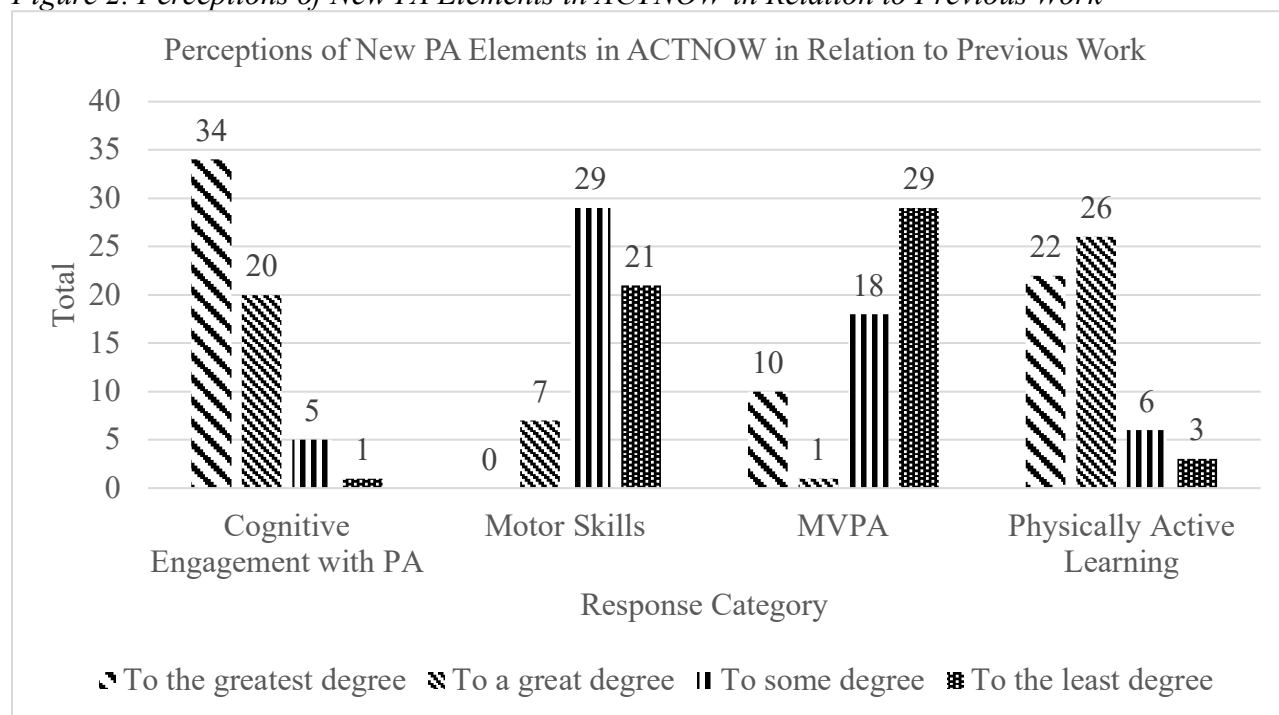


Figure 2 and the table above (Table 5) provide results of perceptions of the novelty of four elements of ACTNOW (i.e., cognitive engagement through PA, motor skill development, MVPA, and PAL) as applied to the extant curriculum before the ACTNOW project.

Regarding cognitive engagement through PA, the distribution of responses was strongly skewed toward low levels of perceived novelty. These findings suggest that this element of ACTNOW was widely perceived as a distinctly new contribution to PA programming.

For motor skill-focused activities, perceptions of novelty were more evenly distributed, though the overall pattern reflects moderate levels of endorsement. *To Some Degree* (50.9%), *To the Least Degree* (36.8%), *To a Great Degree* (12.3%), and *To the Greatest Degree* (0.0%). The

absence of any responses in the highest category indicates that this component may have been viewed as more familiar or conventional, possibly due to its alignment with existing practice norms.

Regarding moderate to vigorous physical activity (MVPA), the response pattern was predominantly weighted toward the lower end of the perceived novelty scale. *To the Least Degree* ($n=29$, 60.4%), *To Some Degree* (37.5%), *To a Great Degree* (2.1%), and *To the Greatest Degree* (20.8%). This distribution may reflect either a pre-existing emphasis on MVPA in prior programming or potential implementation barriers that have limited its perceived differentiation within ACTNOW.

Perceptions of physically active learning were generally favorable, with the majority of respondents identifying it as a novel aspect of ACTNOW. *To a Great Degree* ($n=26$, 45.6%), *To the Greatest Degree* (38.6%), *To Some Degree* (10.5%), and *To the Least Degree* (5.3%). These findings suggest that this pedagogical approach was novel the eyes of practitioners.

Taken together, the response patterns indicate variability in the extent to which participants perceived the novelty of the four core elements of ACTNOW. While cognitive engagement and PAL were broadly recognized as new to them, more traditional elements such as motor skill development and MVPA were viewed as familiar, suggesting that perceived novelty might reinforce the need for differentiated professional development and strategic framing of implementation efforts to meet PTL needs.

Figure 3 presents the distribution of responses regarding which elements of the ACTNOW model participants believed they achieved to the greatest degree during the project period. The elements once again include Cognitive Engagement with PA, Motor Skills, Moderate-to-Vigorous Physical Activity (MVPA), and Physically Active Learning. Each element

was rated across four response categories: *To the Greatest Degree*, *To a Great Degree*, *To Some Degree*, *To the Least Degree*.

Regarding Cognitive Engagement with PA, *To the Greatest Degree* was selected by nine respondents (15.5%). *To a Great Degree* was selected by 14 respondents (24.1%). *To Some Degree* was selected by 20 respondents (34.5%). *To the Least Degree* was selected by 15 respondents (25.9%). These responses indicate that perceptions of cognitive engagement were relatively evenly distributed, suggesting mixed success in achieving this component.

Regarding Motor Skills, *To the Greatest Degree* was selected by 17 respondents (29.3%). *To a Great Degree* was selected by 31 respondents (53.4%). *To Some Degree* was selected by 6 respondents (10.3%). *To the Least Degree* was selected by 4 respondents (6.9%). These results suggest strong perceived success in improving motor skills, with a majority selecting the top two categories.

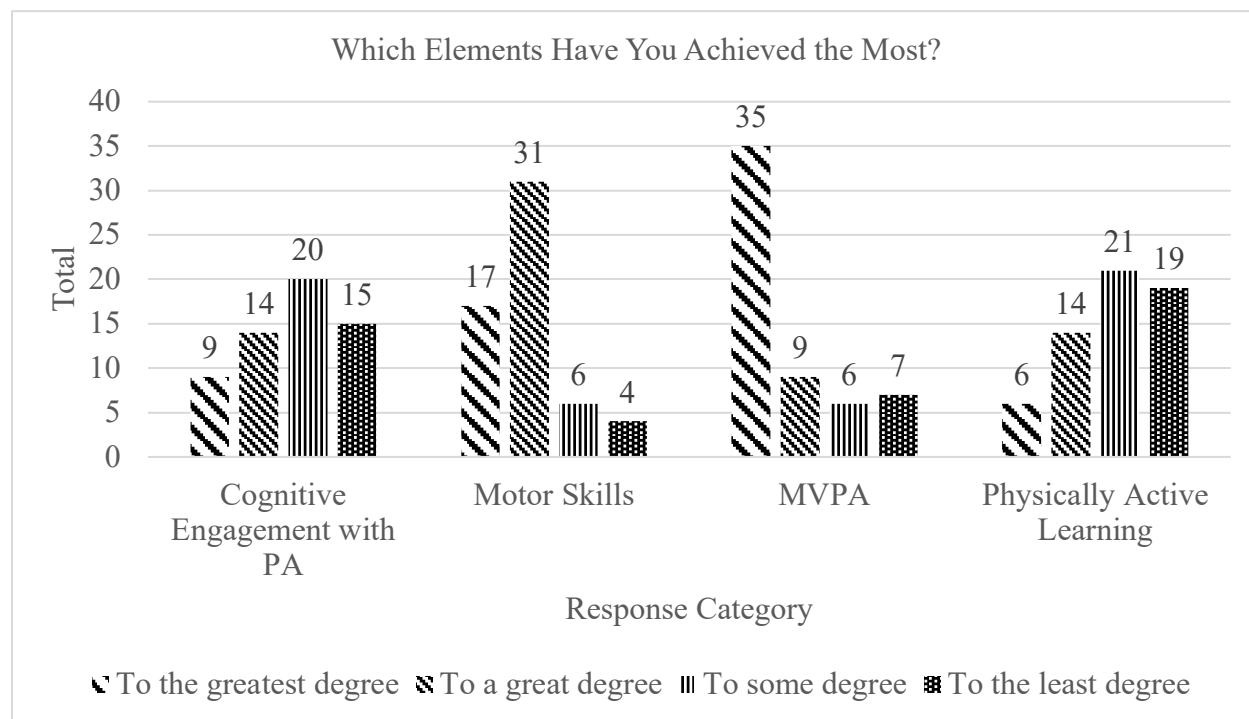
Regarding MVPA, *To the Greatest Degree* was selected by 35 respondents (61.4%). *To a Great Degree* was selected by nine respondents (15.8%). *To Some Degree* was selected by six respondents (10.5%). *To the Least Degree* was selected by seven respondents (12.3%). The data show that MVPA was perceived as the most successfully implemented element overall.

Regarding Physically Active Learning (PAL), *To the Greatest Degree* was selected by 6 respondents (10.0%). *To a Great Degree* was selected by 14 respondents (23.3%). *To Some Degree* was selected by 21 respondents (35.0%). *To the Least Degree* was selected by 19 respondents (31.7%). Responses to this element were more widely distributed, indicating varied perceptions of success in promoting physically active learning.

Overall, these data indicate that respondents viewed MVPA as achieved to the greatest degree, with a clear majority selecting *To the Greatest Degree*. Motor Skills also received high ratings, particularly in the *To the Greatest Degree* and *To a Great Degree*. In contrast, Cognitive

Engagement with PA and PAL showed more variance of responses, suggesting more challenges in implementation, the intervention's content, or unreachable targets. These findings highlight the strength of the initiative in promoting PA and motor skill development while also identifying areas for continued focus.

Figure 3. Elements Achieved to the Greatest Degree During the Project Period.



Prior to the start of the project, the average rating of the staff group's atmosphere for participation was moderate, with a mean of 2.6 (see Table 6). In contrast, current perceptions of the mood for participation were more favorable, with a lower mean of 2.1. These results suggest an overall improvement in the staff climate regarding ACTNOW engagement throughout the implementation period.

Regarding staff perceptions of the atmosphere for participation in ACTNOW before the project began, responses were generally moderate, with limited strong endorsement in either direction.

Table 6. Means Table of Pre-Post Mood for Participation

Question	Total N	Missing	Mean	SD	Minimum	Maximum
How do you remember the atmosphere for participation in ACTNOW in the staff group before it started?	63	0	2.6	.78	1	5
What do you think the mood for participation in ACTNOW in the staff group is today?	63	2	2.1	.53	1	4

Note: 1 = Very positive, 5 = very negative / 1 = Very positive, 4 = Very negative

The mood for participation in ACTNOW among staff after the training indicates respondents held strongly positive perceptions. *Pretty good* was the most frequently selected category, with 47 respondents (74.6%). This was followed by *Neither*, selected by eight respondents (12.7%). *Very good* was chosen by five respondents (7.9%), while *Pretty bad* was selected by only one respondent (1.6%). These results suggest a generally positive, but not completely enthusiastic, outlook on the current mood for participation.

Perceptions of staff receiving sufficient information about ACTNOW before starting, the majority indicated relatively high levels of satisfaction with the preparatory information. *To a Large Extent* was the most frequent response, followed by *To a Very Large Extent*, then *To a Certain Extent*. The distribution suggests that information dissemination was broadly successful, though a small proportion felt only moderately informed.

Regarding the quality of participating kindergartens' work with PA prior to joining ACTNOW, responses were mixed, although most clustered in the neutral or slightly positive assessments. *Neither good nor bad* was the most selected category ($N=31$, 49.2%), followed by *Good* ($N=26$, 41.3%). *Very good* ($N=4$, 6.3%), and *Bad* ($N=1$, 1.6%) filled out the remaining responses. These findings imply that while some respondents saw themselves as good or very good at promoting PA, nearly half viewed their efforts as neutral.

Perceptions of the extent to which PA was an area of focus in kindergartens prior to joining ACTNOW reflected moderate levels of *a priori* emphasis. *To a Certain Extent* was the most frequently selected response, followed by *To a Large Extent*. Then, *To a Small Extent* was chosen by seven respondents while *To a Very Large Extent* was selected by only three respondents. These responses seem to indicate that PA was part of the focus of kindergartens, but not consistently prioritized before the intervention, allowing for growth of PA practices during the intervention.

As one would expect in the context of a PA intervention, when asked whether PA is an important part of the early care and education center, there was near-unanimous agreement among respondents. *Agree a lot* was endorsed the vast majority (N=53, 84.1%), while *Agree* was selected by nine respondents (N=9, 14.3%). No respondents disagree, while one person declined to answer, thus indicating a strong shared belief in the importance of PA within early education.

Perceptions of their colleagues' views on the importance of PA in kindergartens, respondents reflected a general positive consensus, though with some variability. *Agree* was the most commonly selected category (N=35, 55.6%), followed by *Agree a lot* (N=22, 34.9%). A few respondents selected *Neither* (N=5, 7.9%). These results suggest broad alignment among colleagues, though not all respondents perceived strong enthusiasm across their peer group.

Descriptive statistics in reflect the perceived value of the ACTNOW training elements for PTL. In order of favorability, *the two-day startup event* received the highest ratings, *Visits to the kindergarten* (2) were also viewed positively. *The Digital Toolbox* indicated a moderate perception of usefulness. *Meetings with experience-sharing* (4) were rated somewhat less importantly. In contrast, the *webinars* were rated as less valuable, and *preparation of five-point plans, sketches, and weekly planning* was rated the worst. Overall, these findings indicate that in-person, hands-on components tended to be rated more favorably than webinars and planning-

oriented elements. Note that the Digital Toolbox provided online resources that participants could access on their individual schedules.

Table 7. Most Valuable Elements of ACTNOW Training

Element of Training	Valid <i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
Two-day startup	61	1.9	1.31	1	6
Meetings with experience-sharing (2x)	60	2.9	1.42	1	6
Visits to the kindergarten	61	2.3	1.41	1	6
Webinars	61	3.7	1.68	1	6
Preparation of five-point plans, sketches, weekly planning	61	3.9	1.59	1	6
The digital toolbox	62	2.6	1.66	1	6

**Lower mean scores indicate higher rankings (e.g. 1 = Of the highest Value, 6 = Not valuable at all)*

Qualitative Findings

At an overarching level, practitioners across the four case-study preschools generally perceived the ACTNOW CPD program and the UPP as highly beneficial to their everyday practice. We conducted a proactive and rigorous qualitative analysis, using the constant comparative method (Glaser, 1965), which yielded four interrelated themes as a way of understanding the practitioners' responses: (1) Alignment with the national and local policy context; (2) Collaborative orientation and co-developed process; (3) Intervention characteristics;

and (4) Immediate and visible outcomes. A consistent thread through all themes was *the sensitive, responsive approach of the pracademics*, which practitioners identified as essential for their engagement. Below, we describe each theme with illustrative quotations from practitioners.

Table 8. Summary of Generated Themes

Main themes	Subthemes
Alignment with the National and Local Policy Context and Culture	Working holistically with child development National and local preschool policy documents Professional learning community's competence working with professional development
Collaborative Orientation and Co-developed Process	Feeling respected as individuals and professionals Building relations Visits to preschools
Intervention Characteristics	Practicality Flexibility Continuing professional development resources
Immediate and Visible Outcomes	Fun and enjoyment Better relations among children and staff Perceived physical health improvements

Theme I: Alignment with the National and Local Policy Context and Culture

This theme was developed to capture that the practitioners emphasized that UPP's goals were well-aligned with national and municipal priorities for early childhood education. The focus on increasing children's PA resonated with Norwegian preschool mandates that require a holistic approach to child development, where regular PA and outdoor play are already seen as central tasks of the preschool. Practitioners noted that the health benefits of PA were obvious and well known to all, and that ACTNOW essentially encouraged them to enhance practices they were required by law to enact anyway. Because the initiative reinforced existing policy-driven requirements and values, the practitioners felt it would be almost inappropriate to be skeptical of improving the quality of their PA practices and learn new ways to be physically active with their

preschoolers. One teacher, Erik from preschool III remarked, *“PA is something we already do every day. It’s part of who we are as pre-school teachers, so of course we welcomed new ideas to do it even better.”*

In addition to policy alignment, prior professional development experiences shaped how practitioners approached the CPD program and the UPP. All four preschools had recently completed a mandatory 18-month national CPD program on creating inclusive learning environments. While that training was considered valuable, many staff, especially assistants, found it overly theoretical, academically demanding (e.g., extensive written assignments), and disconnected from day-to-day practice. As a result, when the municipality announced another required project (ACTNOW) soon after, some directors and teachers were initially concerned about staff fatigue. However, the preschool leaders took care to integrate ACTNOW into ongoing development work rather than treating it as a separate add-on with a defined start and end. This approach of embedding the new initiative into their established routines and objectives helped mitigate overload. One director, Stella, (preschool III) explained how they reframed ACTNOW as part of the continuous developmental process:

“When the local authorities told us to collaborate with the university on ACTNOW, we didn’t feel very motivated to get involved in a new project so soon after the last one... but then we realized we could make it work by incorporating it into what we were already doing.”

By building on the structures and skills developed during the prior CPD – working collectively as a professional learning community – the practitioners found they could participate in ACTNOW without letting go of other priorities. As an assistant director (Nina, preschool III) reflected:

“We learned to work cross-curricular during the last project, and since we are experienced in this way of working, I’m not worried that ACTNOW will take time away from other things. We know how to work together and don’t need a new meeting for every little thing.”

This illustrates that the strong fit with both external policy mandates and their experience with collaborative, cross-disciplinary work and a culture of ongoing PD created a receptive context in preschools, facilitating acceptability of ACTNOW.

Theme II: Collaborative Orientation and Co-Development Process

The collaborative nature of the partnership between the university and the preschools emerged as a crucial factor driving practitioner engagement. The practitioners contrasted ACTNOW’s collaborative and co-development approach with previous experiences they had with external experts where they had felt disconnected or disrespected. By contrast, the ACTNOW pracademics were consistently perceived as respectful, understanding, and engaging partners. Practitioners across all roles (directors, teachers, and assistants) commented that pracademics took time to learn about the daily fabric of preschool life and valued the educators’ own expertise. One teacher, Melinda (preschool 2), noted, *“I think they [the university team] have been around in preschools before and know what our day-to-day life is like. In other words, they understand.”* Another teacher (preschool 2) put it even more bluntly, *“I don’t think I have come across any professional development before where I felt that they respect us so well... They see the preschool and really become part of it.”* This sense of being “seen” and treated as equal partners fostered a high level of trust and openness toward the UPP.

Several specific aspects of the partnership process were highlighted as particularly effective. First, the on-site visits and hands-on support provided by the pracademics were greatly appreciated, echoing the quantitative results presented in Table 15. The university team made

periodic visits to each preschool to participate in PD activities and to conduct research.

Practitioners noted that even activities related to the research (such as observing educational practices or conducting child assessments for the RCT) were conducted in a constructive manner, which helped build relationships. One of the teachers (John, preschool III) explained that when the researchers visit, that it *“means a lot to the assistants too. It’s a good way for them to feel included... It’s easier to get things flowing and get the assistants engaged.”* By spending time in the preschools, the pracademics became familiar with each site’s unique context (e.g. physical layout, outdoor facilities, daily schedules, personnel), demonstrating contextual sensitivity. Directors, in particular, mentioned that because the pracademics knew their setting and challenges, the threshold for reaching out to ask questions was low. They felt comfortable emailing or calling the pracademics who could help problem-solve. One director (Tale, preschool IV) emphasized the relational aspect: *“The researchers have worked with us, especially us leaders, and I’ve been bragging about how good they are at building relationships.”*

Overall, the equitable, responsive partnership cultivated by the university team led to a strong sense of collective ownership among practitioners. They consistently used terms like “we” when talking about the project, indicating that they viewed ACTNOW not as an externally imposed program, but as a shared mission co-created with the pracademics. The collaborative process, which involved building trust, empowering practitioners, and integrating external expertise with local knowledge, seemed to enhance the acceptability and integration of ACTNOW in each preschool, also among those not participating in the CPD. It also helped overcome initial resistance stemming from prior negative CPD experiences.

Theme III: Intervention Characteristics

The design and delivery of the ACTNOW CPD program itself, in particular its practical orientation, flexibility for local adaptation, and supportive resources, were also essential to the

practitioners' engagement. Many practitioners admitted that when they first learned of the ACTNOW UPP, there was some initial resistance, because it was introduced by local authorities as a mandatory project. However, this resistance gradually seemed to diminish once staff realized that it was more practical and not as demanding as other projects they had experienced. Unlike more abstract CPD programs, ACTNOW encouraged educators to make small adjustments to existing practices, and to do more of what they were already doing, to increase PA instead of requiring radical changes. This approach was seen as more feasible, helping to bring initially hesitant staff on board. For example, they noted that ACTNOW asked them to reconsider everyday routines – such as tolerating more noise during indoor active play or encouraging children's independence in physical tasks – rather than to adopt an entirely new way of working. *"We didn't have to throw out our old ways of doing things; we just tweaked them,"* explained a teacher (Trine, preschool II), highlighting the compatibility of the intervention with their current practice. This illustrates how by prioritizing flexibility over rigid fidelity, ACTNOW empowered practitioners to innovate within their existing practices, which in turn fostered a sense of agency for further development.

Another valued characteristic was the experiential learning built into the CPD program. ACTNOW combined evidence-based theoretical perspectives ("why" to change) with practical strategies ("how" to change) for increasing children's PA. The practitioners perceived that this blend of theory and practice made it easier to engage with than previous CPD programs that had been heavy on lectures and assignments. Bertha, (director preschool I) said for example: *"It is easier to get staff involved in practical matters than when it's all theoretical."* The practitioners appreciated that the CPD program included concrete examples and assignments that directly related to their daily practices. This made them feel capable of making changes because they had tried them together with the pracademics. An assistant, Elisabeth (assistant preschool II),

described how she previously would automatically help children put on their coat or climb onto a swing, but after ACTNOW she instead encouraged them to do it themselves to get a few extra steps. *“I think in a different way now than before”*. Such small but significant changes in daily practices were reported across sites.

Importantly, practitioners highlighted the balance between flexibility and structure. They greatly valued the freedom to choose activities to fit their preschool’s needs, resources, and culture. This local tailoring was described as critical for uptake. However, teachers and directors also noted that being part of a UPP established a level of accountability and motivation that independent efforts might lack. They noted that the responsibility of participating in a UPP rather than working on their own pushed them to prioritize and sustain PA. Knowing that the practitioners would check in, and that they were contributing to research, created pressure to follow through on plans. Kari, Pedagogical Leader in Preschool I said, *“I think this [accountability] is perhaps more something we have talked about [through training], because we are very focused on getting all the teachers involved.”*

Finally, the inclusion of accessible resources and ongoing support was another appreciated characteristic of ACTNOW. In addition to the face-to-face CPD sessions, the program provided prerecorded video lectures and a digital “PA toolbox” that practitioners could consult on demand. These resources, created by the pracademics, covered both theoretical concepts and demonstrations of PA activities. The practitioners reported that having the videos available was useful, and several preschools incorporated the videos into staff meetings as discussion starters, where staff would watch a segment together and then reflect on how it applied to their practice, enhancing collective learning. Moreover, the digital resources proved invaluable for onboarding new staff, ensuring they caught up with their colleagues’ knowledge base.

“And she [the university pracademic] was a bit out and about and took part in a staff meeting in the evening, and I also think it was very good for the others that it wasn't just us who were involved in the project, but that all the colleagues could be involved. Where the four of us informed about these components, and then she was there and could fill in a bit, and help us a bit, and come up with some ideas, and then some ideas came from the employees, and then there was a bit of brainstorming. That and I think it was an important part for the others to feel included.” – Nina, Preschool III

Overall, the findings highlight how intervention characteristics functioned as facilitators, and how the combination of off-site CPD sessions, on-site visits, and digital content seemed to have developed receptive preschool contexts.

Theme IV: Immediate and Visible Outcomes

Experiencing tangible benefits early on emerged as a powerful driver for the practitioners' engagement. Practitioners were motivated by the fact that ACTNOW translated quickly into visible positive outcomes in the children and the staff community. They enthusiastically reported how introducing new games and routines led to immediate signs of children's enjoyment and engagement. *“You see the joy in the children's eyes when they get to try new things... It quickly becomes a pleasure,”* said Nina, the assistant director in preschool III, describing how the children's excitement reinforced the practitioners' belief they were on the right track. In addition to increased enjoyment, the practitioners observed improvements in children's physical skills and stamina. For example, in preschool IV, the practitioners reported that half a year into the project period, their 5-year-olds were able to undertake longer outdoor hikes than before. An assistant (Elisabeth) reported, *“A first grade teacher told us she was amazed at our kids' endurance while hiking, and how many games they knew as well as their creative play.”* Such external validation seemed to increase the practitioners' pride in their work and reinforced their perceived

effectiveness of ACTNOW, strengthening their commitment to embed these practices into the preschool's daily fabric.

Practitioners also noted that the immediate and positive outcomes had ripple effects throughout their preschool. Initially hesitant practitioners began to warm to ACTNOW after witnessing the positive changes in their colleagues and children. More active play also started to spread to other age groups within the preschools, since practitioners in the toddler classrooms (who were not formally part of ACTNOW, which focused on older preschoolers) began adopting more active play after seeing the outcomes next door. *“Even the little ones are copying the older children now,”* one assistant (Eli, preschool 1) noted, describing how toddlers would observe the older group playing a game like “the shark is coming” and then join in or copy it later.

Practitioners' perceptions indicated that ACTNOW was becoming part of the daily fabric, and that the immediate visible outcomes thus not only validated the UPP but also encouraged a shift toward a more active pedagogical culture.

In summary, the findings demonstrate that practitioner engagement, co-development, context sensitivity, and policy alignment were critical mechanisms facilitating ACTNOW's uptake. Together, these elements enabled ACTNOW and the UPP to be collaboratively owned and sustained with the practitioners in their local context.

Discussion

The purpose of this study was to conduct a process evaluation of how preschool practitioners experienced and responded to the ACTNOW CPD and UPP. Specifically, this work investigated how contextual, relational, and design-related factors interacted to further understand practitioner ownership, uptake, and sustained engagement. This discussion begins by situating the findings and results within the broader research literature, then moving on to

triangulating the results, and finally proposing implications for policy, research and theory, and practice.

These findings emphasize the importance of the sociocultural historic (Vygotsky, 1978) context in which UPP operate. Organizations have developed their culture and orientations over time, and individuals come with prior experience, training, beliefs and desires resulting from their cultural contexts and histories. Not only does culture act on the individual, but also individuals act on culture, thus shaping and being shaped simultaneously. Situating these findings within this perspective provides a useful way of understanding the sociocultural-historic dynamics (e.g., previous experience, legislative parameters, kindergarten cultures) at play within UPPs.

These findings indicate that the positive response among most practitioners to the ACTNOW UPP was facilitated by alignment across multiple system levels (Bronfenbrenner, 2000). By resonating with national policy expectations (e.g. Norway's mandate for research-informed practice in ECE) and preschool priorities (e.g., innovative CPD), as well as practitioners' values and beliefs about the importance of integrating PA into daily practices, the UPP operated within a supportive mesosystem. This indicates that the ACTNOW UPP was best received when the intervention aligned with policies, connected with existing practices, and was woven into the fabric of practice rather than acting as an external add-on with a starting and ending point (i.e., the beginning and end of the RCT). These results and findings also shed light on the importance of pracademics' awareness to the issues at stake in the practice field and to involve practitioners in planning to ensure alignment with local policy plans and preschool priorities.

Another central finding in this study is the critical role of building trustful relationships in UPPs in order to transform potentially top-down knowledge transfer into a relational co-

construction process. The practitioners in this study perceived that the pracademics acted as collaborators rather than distant experts enforcing implementation. In particular, our findings underscore that the PTL appreciated the opportunity to discuss pedagogical and organizational matters with the pracademics. This aligns with previous research (e.g., Farrell et al., 2019, 2021; 2022a; 2022b) and suggests that practitioners can become active agents of change when they are treated as equal partners in knowledge creation.

These findings also underscore the value of pracademics to encourage practitioners to engage in reflections on their own practice instead of viewing them as recipients of expert knowledge and prescribed activities. Through a collaborative cycle of planning–action–reflection with colleagues and pracademics, ACTNOW gained local meaning and traction. This finding resonates with Guerrero-Hernández and Fernández-Ugalde’s (2020) observation that teachers must be legitimated as active agents and co-researchers in UPPs. It also underscores that a well-designed UPP should value practitioners’ knowledge as equal to academic knowledge, and to actively include opportunities for practitioners to adapt and refine pedagogical practices, observe effects, and share feedback with colleagues and pracademics. Hence, these findings call for more inquiry-oriented and teacher-empowering models of professional development supporting practitioners’ daily practice.

Finally, the findings regarding immediate outcomes and ongoing reinforcement point to how a UPP can initiate sustained change. For example, new practices originating from the UPP, were written into the preschools’ current and future curriculum plans. Hence, the visible successes in ACTNOW seemed to do more than motivate the individual practitioner. The findings suggest that the immediate outcomes, which both children and staff regarded as positive, influenced the preschool’s collective mindset about PA. An implication for designing UPPs is to deliberately seek and celebrate early wins and to use them strategically to build

broader support, as was done in ACTNOW. Additionally, UPPs should consider how to embed their key practices into organizational structures such as policies, routines and roles before external support is withdrawn. This may involve developing leadership capacity among practitioners to ensure that the new practices are taken forward. This aligns with extant literature on sustainability of change in educational organizations (see Safese & Kopp, 2025 for a full review).

Taken together, these insights suggest that UPPs could function as more than a mechanism for delivering CPD/interventions. Well-functioning UPPs might serve as the relational infrastructure for ongoing professional development and educational change. Rather than viewing a partnership as a time-limited project, it seems more productive to view it as an evolving network, relationship, or community of practice that continues to generate and circulate knowledge.

For researchers, this means shifting from a paradigm of strictly controlling implementation for fidelity to one of facilitating learning and development. For practitioners and policymakers, our study underlines that investing time and talent into partnerships can lead to immediate development in practice as well as longer-term capacity building. However, to gain these benefits, university partners must value practitioner knowledge and be responsive to national and local context. It also requires funders and researchers to allow flexibility in implementation and recognize the value of adaptation to context as the pathway to success rather than as violations, deviations, or implementation failures. Our findings also contribute to the key role of pracademics in change processes. In our study, their sensitivity to the preschool context and relational capacity played a critical role in the practitioners' responsiveness to ACTNOW, and future work could further elucidate the competencies and structures that enable effective pracademic facilitation of partnerships.

Contextual, Relational, and Design Factors

This study illustrates how contextual, relational, and design factors combined to support preschool practitioners' engagement with the ACTNOW CPD content and the UPP. Alignment across multiple system levels (Bronfenbrenner, 2000) ensured that the program resonated with both national policy expectations and practitioners' beliefs about embedding PA in early childhood education. By framing ACTNOW not as an external intervention with a start and end point but as an integrated part of practice, the UPP fostered ownership and uptake. Equally important were the relational dynamics underpinning the initiative. Practitioners viewed pracademics not as distant experts but as collaborators who legitimated their expertise. This relational stance transformed ACTNOW from a model of top-down knowledge transfer into a co-constructed learning process. The collaborative planning–action–reflection cycle supported professional agency, echoing Guerrero-Hernández and Fernández-Ugalde's (2020) call for educators to be treated as co-researchers. Such findings underscore that well-designed UPPs must not only provide evidence-informed strategies but also recognize practitioners as equal partners in knowledge creation and refinement.

Triangulation and Comparative Findings

The triangulated results reveal both convergence and divergence across key domains of implementation climate, staff engagement, professional development, and sustainability. Quantitative findings indicated improvements in staff motivation, climate, and perceptions of implementation feasibility. These outcomes were enriched by qualitative accounts that emphasized how policy alignment and pracademics' collaborative orientation reduced perceptions of overload and fostered ownership (Klein-Wengel et al., 2021). Professional development was most effective when experiential, as practical formats were prioritized. Survey responses rated hands-on training as highly valuable, and practitioner

narratives confirmed that balancing theoretical framing with incremental adjustments in practice promoted both confidence and capability (Varman et al., 2023; Bourke et al., 2024).

Sustainability findings reflected similar tensions. Practices perceived as both novel and demanding, such as PAL, required greater scaffolding, whereas more familiar domains such as motor skills were embedded more readily. Qualitative evidence indicated that visible benefits and contextual fit fostered adoption, while quantitative results suggested staff remained more confident in implementing motor-focused practices. Taken together, these comparisons highlight the need to balance innovation with compatibility to ensure long-term adoption.

Implications for Practice, Policy, and Research

These results contain significant implications across practice, policy, and research. For practitioners, ACTNOW demonstrates the value of professional development designed as a co-constructed process that legitimizes teachers' expertise and cultivates reflective, adaptive practice. For policymakers, the program highlights the importance of embedding professional development initiatives within existing policy frameworks and institutional priorities. Alignment with national mandates and local leadership structures reduced perceived burdens and strengthened feasibility, suggesting that policy design should allow for adaptation rather than rigid fidelity.

The role of pracademics is particularly noteworthy. As intermediaries who bridged academic and practitioner knowledge, their relational sensitivity proved essential to implementation. Future initiatives should consider how to prepare and support pracademics to fulfill these collaborative roles effectively. For researchers/pracademics, the findings indicate a need to shift from fidelity-driven paradigms toward approaches that value contextual responsiveness and adaptation. Ongoing studies could investigate how pracademic competencies

contribute to partnership sustainability and how immediate organizational benefits can be leveraged to reinforce professional and cultural change.

Ultimately, ACTNOW illustrates that UPPs can serve not only as vehicles for intervention but as infrastructures for sustained cultural and pedagogical transformation. To realize this potential, research-informed practice must be pursued as an evolving partnership that integrates theory, embraces comparative insights, and informs practical and policy-oriented change.

Limitations

This process evaluation presents several methodological challenges that should be acknowledged when interpreting the findings. The qualitative component was based on four purposively selected preschools, which, while offering in-depth insights, limits the breadth of perspectives and reduces the transferability of findings to other contexts (Yin, 2018; Flyvbjerg, 2006). Similarly, the quantitative data were drawn exclusively from Project Lead Team members, and although these individuals were central to implementation, this focus introduces potential selection and nonresponse bias (Groves, 2006).

Measurement-related limitations also warrant attention. Survey items were developed specifically for this project and lack established reliability or validity evidence, which constrains the interpretability and comparability of results (DeVellis, 2017). Retrospective questions asking participants to recall conditions prior to ACTNOW are susceptible to recall bias (Hassan, 2005), especially after a duration of 18 months. Furthermore, the policy context and prevailing positive attitudes toward PA may have contributed to social desirability bias, as reflected in ceiling effects on some items (Krumpal, 2013). Further, the limited variability in these answers further limited the utility of these data for predictive analyses. The structure of the barriers and

facilitators checklist, which used mirrored opposites and limited response options, may have forced choices and restricted nuanced responses (Weijters et al., 2013).

Procedural factors also introduce limitations. Variation in survey timing across waves, combined with the influence of COVID-19 disruptions, may have shaped participants' perceptions in ways not fully accounted for in the measurement and subsequent analysis (Office for National Statistics, 2022; Rothbaum & Bee, 2022). For the qualitative data, translation and cross-language coding, while managed by bilingual researchers, carries the possibility of subtle meaning loss (van Nes et al., 2010). Regarding the analyses, the quantitative results relied on descriptive statistics only, which prevents inference and does not account for clustering of staff within preschools (Donner & Klar, 2000). The integration of two qualitative time points into a single dataset enhanced comprehensiveness but reduced the ability to adequately explore temporal changes, especially in the context of the rapidly changing recommendations regarding COVID-19 during this period.

Finally, the Norwegian policy and cultural context, including its robust emphasis on outdoor play, coupled with mandated development projects, limits the generalizability of findings to other settings, especially outside of the Nordic context (Sapkota et al., 2024). Both qualitative and quantitative strands relied on self-report, and the absence of objective process indicators reduces a comprehensive triangulation while also limiting the ability to assess fidelity and adaptation (Skivington et al., 2021). Future evaluations should consider incorporating validated measures, multilevel analyses, objective indicators, and strategies to strengthen methodological rigor (Lincoln & Guba, 1985).

Future Research

Future evaluations of UPP in early childhood settings should move beyond documenting positive perceptions to clarifying the conditions and mechanisms through which complex

interventions such as ACTNOW are integrated into daily pedagogical practice. This section addresses the limitations identified in this evaluation and outlines directions for future inquiry.

Measurement

Future studies should recruit multi-role, multi-site samples that include assistants and other frontline practitioners, not only PLT members, to improve representativeness (Yin, 2018; Flyvbjerg, 2006; Groves, 2006). Evaluations should prioritize validated instruments or follow best practices for developing new scales (DeVellis, 2017; Boateng et al., 2018). Retrospective questions should be minimized or paired with contemporaneous indicators to reduce recall bias (Hassan, 2005). Social desirability requires mitigation through balanced wording and indirect questioning (Krumpal, 2013); however, policy dictates that participants know that they are participating in a PA intervention, limiting the ability to fully reduce this issue.

Data Collection and Preparation

More longitudinally collected data would provide the ability to both measure change over time and reduce the recall bias inherent in retrospective survey items. Future international collaborations should also implement standardized translation and cultural adaptation procedures (Beaton et al., 2000; Temple & Young, 2004). Taking this approach in the United States could also illuminate cultural differences.

Evaluation Framework

Realist Evaluation Framework

Realist Evaluation is a theory-driven approach to evaluation aimed at understanding not just whether a program works, but *how, for whom, and under what circumstances*. Developed by Pawson and Tilley (1997a, 1997b), it is grounded in a realist philosophy of science, this viewpoint holds that outcomes are generated by mechanisms that manifest within specific contexts. The central tenet of Realist Evaluation is the Context-Mechanism-Outcome (CMO)

configuration, which guides evaluators to explore how contextual factors interact with underlying mechanisms to produce observed outcomes.

Despite its strengths, conducting realist evaluations presents several limitations. The breadth and depth of inquiry required to identify CMO conformations often prove resource-intensive and exceed the scope of typical evaluation budgets (Nielsen et al., 2023). Funding constraints thus limit the ability to engage diverse stakeholders or conduct longitudinal data collection, both of which usually necessary to validate mechanisms across varied contexts. Additionally, realist evaluations rely heavily on an evaluator's ability to test mechanisms, which can be challenging when these are latent, context-dependent, or poorly understood (Mukumbang, 2023). These limitations underscore the need for funding, careful planning, methodological rigor and intensity, coupled with transparent communication when applying realist approaches to complex interventions.

Realist Framework and ACTNOW. I apply the realist evaluation framework with the knowledge that the extant data and analyses likely fail to meet the threshold demanded by the realist evaluation community. For example, the small number of qualitative sites and exclusive focus on PLT members reflect contextual constraints. Mechanisms such as relational trust and professional agency may not activate similarly in different settings. Measurement limitations, including retrospective survey items and social desirability bias, further hinder the ability to fully capture mechanism activation and contextual variation.

In ACTNOW, the context included Norway's national policy mandates for preschool participation in development projects, a cultural emphasis on outdoor play, and prior professional development experiences that shaped practitioner expectations. These factors created a receptive environment for the intervention.

Mechanisms activated by the ACTNOW UPP included relational trust between preacademics and practitioners, co-development of content that respected practitioner expertise, and flexible intervention design that allowed for local adaptation. These mechanisms fostered ownership, motivation, and professional agency among participants.

Outcomes included high levels of practitioner engagement, perceived improvements in children's PA and motor skills, and integration of ACTNOW practices into daily routines and future curriculum planning. These outcomes were reinforced by visible, albeit short-term, benefits observed by participants.

Future research should also focus on mechanism refinement and contextual variation. Studies should examine how mechanisms such as co-development and relational trust operate across diverse settings and populations. Evaluations should incorporate longitudinal designs and validated instruments to better capture the temporal dynamics of mechanism activation. Additionally, future work should explore how visible outcomes reinforce practitioner engagement and how these outcomes can be leveraged to sustain implementation beyond the intervention period.

Readiness for Change

Additionally, in consultation with several colleagues in Norway, England, and the US., these data led us to the concept of readiness for change (RFC). RFC is the cognitive precursor to behaviors of either resistance to or support for a change effort (Armenakis et al., 1993). At the systems level, RFC encompasses content, process, context, and characteristics (Holt et al., 2007). For PAL, these dimensions map onto implementation across multiple levels and systems: individual commitment, self-efficacy, perceived control or agency, and openness to change, and organizational and partnership conditions such as leadership support, communication and

transparency, work climate and collaboration, past change experience, and school-university partnership readiness, trust, and sustainability.

Perceived Responsibility. *Commitment to Change:* Teachers who believe PAL will improve student learning outcomes and feel personally committed to implementing it exhibit higher RFC (Armenakis et al., 1993). Positioning PAL as integral to engagement and achievement reinforces commitment. *Self-Efficacy and Confidence:* Confidence in one's ability to integrate movement into lessons, manage transitions, and troubleshoot challenges is a critical antecedent of action (Bandura, 1997). General self-efficacy supports adaptive coping with unexpected events (Schwarzer et al., 1995). Targeted professional development (PD) that models PAL routines and provides practice opportunities strengthens efficacy. *Perceived Control and Agency:* Autonomy to adapt PAL to grade level and subject, partners receiving equal voice in implementation decisions, and meaningful feedback channels increase perceived control and ownership (Deci & Ryan, 1985; Lewis, 2011). Simple planning tools and choice architectures allow teachers to fit PAL to daily work while maintaining instructional rigor. *Openness to Change:* Dispositions such as openness to experience and an orientation toward learning facilitate experimentation with PAL strategies (McCrae & Costa, 1997; Judge et al., 1999). Reflective activities that highlight small wins and student engagement can nurture openness and reduce perceived risk.

Practical strategies at the individual level include professional development that explicitly ties PAL to standards, micro-coaching cycles, classroom management routines for movement, and teacher-led adaptation guides that support autonomy while maintaining fidelity to core principles.

Contextual Support. This level examines the systems, school environments and partnership conditions that enable teachers to implement PAL. Even highly committed teachers

need supportive structures. The survey's organizational and partnership domains define this level. *Leadership Support*: Clear vision, visible commitment, and practical support from school leaders signal that PAL matters (Kotter, 1996; Armenakis & Bedeian, 1999; Holt et al., 2007). Leaders can schedule collaborative planning, recognize PAL implementation in observations, and allocate time and materials. *Communication and Transparency*: Two-way, timely, and understandable communication from school leadership and the university team builds clarity and confidence (Lewis, 2006; Armenakis & Bedeian, 1999). Staff should feel comfortable asking questions and see that input influences decisions. Transparent timelines, roles, and expectations reduce uncertainty. *Work Climate and Collaboration*: Functioning professional learning communities (PLCs), psychological safety, and peer support make PAL adoption smoother. A culture of continuous improvement normalizes iteration and learning from small tests of change (Holt et al., 2007; Kotter, 1996). *Past Change Experience*: Organizational memory of successful initiatives increases optimism and guides planning; conversely, past pain points highlight where scaffolds are needed (Armenakis & Bedeian, 1999). Brief retrospectives can identify enabling conditions and avoid repeating missteps. *School-university Partnership Readiness*: The university team's clear vision, training resources, and responsiveness enhance school RFC. Effective collaboration, flexibility, and respect for school context foster trust and shared problem solving (Holt et al., 2007; Lewis, 2006). Attention to sustainability, including capacity, materials, and routines beyond the research period, supports long-term success. Practical strategies at the contextual level include leader PD on PAL, structured communication plans with Q&A fora, PLC protocols that feature PAL lesson study, resource inventories and checklists, and partnership agreements that specify training, coaching, feedback cycles, and sustainability supports.

Applying the Theory of Social Organization and Change. Mancini and Bowen's (2013) Theory of Social Organization and Change identified the key processes involved in

community organization and change and applying it to UPPs could also provide a more robust understanding of the dynamics at play. Action and change mechanisms in this theory focus on *shared responsibility* of organizations and individuals, *collective competence* (i.e., the ability to take action, solve problems, and engage in activities that support individuals, families, and communities) and *intentional development of social infrastructure*. Additionally, constructs such as *collective competence* (the ability for those involved to collectively achieve goals), *trust*, and *reciprocity* speak to the mechanisms at work in these UPPs. Future research should incorporate theories that address these mechanisms above and beyond a realist evaluation framework.

In sum, applying a realist evaluation to ACTNOW, despite the significant limitations inherent in this dataset, highlights the potential to understand how contextually sensitive mechanisms might generate practitioner engagement and sustainable outcomes at the child level. This framework, along with comprehensive evaluation data, would provide a useful lens for interpreting complex interventions and guiding future research on UPP working in PA in early childhood education settings, especially as it relates to RFC.

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Appendix A

Master of Public Health Applied Practice Experience

Life is long if you give it away: An evaluation of the Livsglede for Eldre (Joy of Life for Elders) intergenerational meetings in Norway

by

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submitted in partial fulfillment of the requirements for the degree

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Portfolio Products

I completed my Applied Practicum Experience with *Livsglede for Eldre* (LFE), a Norwegian public-health–focused nonprofit organization established in 2007. LFE originated from a 2005 volunteer initiative created by nursing students who sought to bring joy and meaningful engagement to older adults in their communities. Since its founding, LFE has grown into a national social innovator working with municipalities across Norway to improve the quality of life for older adults.

A central part of LFE’s work is the development and management of *Livsgledehjem* (Joy of Life Nursing Homes), a nationwide certification system that embeds joy, meaningful activity, and individualized psychosocial support into long-term care in nursing homes. The certification is built around nine criteria emphasizing consistent staff training, community partnerships, weekly outdoor time, interaction with animals, support for hobbies, cultural and spiritual engagement, pleasant mealtime environments, family involvement, and recognition of seasonal changes in daily life. The system ensures that each resident’s background, preferences, and needs guide their individualized activity plans.

LFE also coordinates structured partnerships between nursing homes and schools, kindergartens, and youth programs, fostering intergenerational interaction that benefits both young people and older adults. These programs promote communication skills, hands-on learning in health contexts, and positive attitudes toward aging. Additionally, LFE supports a network of local volunteer chapters across Norway. These chapters organize community-based activities for older adults and receive guidance from the national organization. Through this multifaceted approach, LFE strengthens public health for older adults by promoting joy, social connection, meaningful engagement, and sustainable community collaboration.

My Experience

I worked from Bergen, Norway, and collaborated with the LFE team virtually and in-person in both Oslo and Bergen. My primary contacts were Ine-Sofie Smedmoen Kristiansen, Siri Bjerkan, and Linda Fahle-Johanson. My learning objectives were to understand intergenerational meetings from both the Norwegian and public health perspectives, and to understand the nuances of a national system of supports for intergenerational meetings. To do so, I proposed both survey and interview data collection methods.

Survey

Survey design was conducted collaboratively by the lead author, Dr. Bradford Wiles, and several staff members at Livsglede for Eldre in Oslo, Norway. A significant period of refinement, including translating the survey to Norwegian, item refinement, and bug and pilot testing, occurred with their support. After securing approval from Kansas State University's Institutional Review Board, a 31-item Likert-type survey (e.g., scale points from 1 to 5) was disseminated through Livsglede for Eldre's official email list, and two reminder messages were issued to promote participation. Data collection occurred during the winter months of 2024-2025. Across the 31 total item-response questions, the average response count was 159. The response range varied from a low of 117 to a high of 172. These data demonstrate a high level of engagement among respondents across professional sectors. In addition to the 31 scale questions (one with a sub-question), a narrative response question: *Do you have any feedback for Livsglede for Eldre related to experiences from participating in intergenerational meetings?* was also included.

Guided Interviews

Additionally, four guided qualitative interviews were conducted face to face in April 2025 with key stakeholders in southern and southeastern Norway (i.e., two with administrators

from nursing homes and two with directors of early childhood care and education centers). Interviews lasted between 38 and 65 minutes. Questions were asked in English and, to ensure nuanced answers, responses were provided in Norwegian. The researcher has limited proficiency in Norwegian but also used a translation application to make sure that he asked appropriate follow-up questions. On one occasion, the application was used to translate a question into Norwegian. Data were transcribed from Norwegian using Microsoft Word, then translated to English using Google Translate, and then cleaned up by a research associate for clarity and readability. The author coded these data using a constant comparative method and then conducted member checks to ensure that their thoughts were conveyed correctly.

Products

After data collection and analysis, I prepared an executive summary and a full report on the results of the evaluation. These products are attached in the appendix. Additionally, I presented results at the OMEP (World Organization for Early Childhood Education) Conference in Bologna, Italy in July 2025.

Table 9 Summary of Portfolio Products

Portfolio Product		Description
1	Executive Summary of LFE evaluation	Provided an easy for stakeholders to digest summary of the results of the evaluation
2	Full Evaluation of LFE	A comprehensive report providing methods, data, analysis, and discussion was provided to LFE.
3	Presentation at OMEP	Presented results at the OMEP conference in Bologna, Italy in July 2025.

Table 10. Portfolio Products and Competency Addressed

Portfolio Product	Number and Competency Addressed
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2	Full Evaluation of LFE	2	Select quantitative and qualitative data collection methods appropriate for a given public health context
2	Full Evaluation of LFE	3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
1	Executive Summary	18	Select communication strategies for different audiences and sectors
3	OMEPP Presentation	19	Communicate audience-appropriate public health content, both in writing and through oral presentation
2	Full Evaluation of LFE	11	Select methods to evaluate public health programs

Competencies

Table 11. Summary of MPH Foundational Competencies

Number and Competency		Description
1	2 - Select quantitative and qualitative data collection methods appropriate for a given public health context	I used this competency to co-design the evaluation instruments.
2	3 - Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	I used SPSS to analyze the quantitative data, as well as MS Word to translate and then code the qualitative data.
3	4 - Interpret results of data analysis for public health research, policy or practice	I did this for all three of my products (i.e., Exec. Summary, Full Evaluation, and OMEP presentation).
4	5 - Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings	I explored the policy background and Norway's approaches to public health. Specifically, I looked at Norway's investment in older adults versus the United States' investment.
5	11 - Select methods to evaluate public health programs	I evaluated the LFE program by selecting methods.
6	15 - Evaluate policies for their impact on public health and health equity	In conjunction with #4, I evaluated the policies of both the Norwegian government, and the policies LFE follows for their intergenerational meetings.

I employed and attained effective mastery of three of the Evidence-based Approaches to Public Health competencies (i.e., 2 - *Select quantitative and qualitative data collection methods appropriate for a given public health context*, 3 - *Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate*, and 4 - *Interpret results of data analysis for public health research, policy or practice*). These were foundational to creating the evaluation methods, approaches, analysis, and recommendations that any solid evaluation process follows. Further, these were absolutely central to demonstrating my competencies to my APE site partners, as they needed to ensure that I would do no harm to their organization or their partners and stakeholders.

I also attained mastery of one of the Public Health and Health Care Systems competencies, specifically, *compare the organization, structure and function of health care, public health and regulatory systems across national and international settings*. Because of the nature of my experience abroad, understanding the structure and function of public health, especially learning how the Norwegian government supports intergenerational meetings as a function of public health, proved a paramount competency for my success. The intricacies of their systems required time and competence to understand. I also mastered the competency, *select methods to evaluate public health programs* under the Planning and Management to Promote Health competency. Again, this competency set the stage for my success and provided evidence of my professionalism and competence with new partners. Finally, under the Policy in Public Health category, I used the *evaluate policies for their impact on public health and health equity* competency to frame the recommendations resulting from the evaluation.

Table 12. MPH Foundational Competencies Course Mapping

22 Public Health Foundational Competencies Course Mapping	MP H 701	MP H 720	MP H 754	MP H 802	MP H 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		

Use of Systems Thinking Tools

Table 13. Application of Systems Thinking Tools to a Public Health Issue.

Systems Thinking Tool	Description of Use
Process Mapping	I used this tool to understand the role of LFE in disseminating information, training, holding conferences, and establishing local coalitions. Further, I needed to understand the ways LFE engages with schools based on the ages of the children.

The LFE approach represents a somewhat complex process. I used process mapping to understand their role in establishing and maintaining local partnerships, and by focusing on processes in working with different children's ages, I mapped the levels of engagement and the respective expectations and responsibilities of the children, youth, faculty, and staff at the kindergartens (preschools), primary schools from grades 1-7 (*barneskoler*), lower secondary school from grades 8-10 (*ungdomsskoler*), and upper secondary school from grades 11-13 (*videregående skoler*). Interestingly, the students in grades 8-13 take leadership in organizing, scheduling, and identifying the activities in which they and the older adults will participate. The LFE program aligns with the parts of Norway's school curriculum focusing on civic service, leadership, management, and collaboration to name a few.

Additionally, they have processes for establishing local affiliates, credentialing schools and nursing homes, and, especially in the elder care settings, tracking involvement in the LFE program. For each of these I sat with LFE staff members and mapped them out so I could both understand the entire context and identify aspects of these processes to explore in the qualitative interviews. Unfortunately, all of these mappings were done without capturing them formally, yet I know that I used this technique extensively to enhance my work.

Student Attainment of MPH Emphasis Area Competencies

I was able to reach competency in each of the Public Health Physical Activity (PHPA) emphasis areas through my culminating experience, in this case my master's thesis. First, writing my thesis required me to *investigate the impact of physical activity (PA) on population health and disease outcomes* because of the multiple studies targeting school-age children's PA and health outcomes (e.g., obesity, muscle mass, blood pressure) related to the PHPA intervention I used for my thesis data sources.

Much like the above, writing my thesis required me to apply the *investigate social, behavioral and environmental factors that contribute to participation in physical activity* competency. Schools and school children represent special environments, social cultures, and behaviors. I investigated the Norwegian context, the level of required continuing professional development (CPD), and the experience of school systems with university-practitioner partnerships.

Moreover, the *examine and select social and behavioral theories and frameworks for physical activity programs in community settings* competency by applying theories related to readiness for change, and Bronfenbrenner's Process-Person-Context-Time (PPCT) perspective to frame the multiple levels and sociocultural historic experiences of the individuals and the organizations in which they work. Specifically, understanding practitioner experiences with previous university-practitioner partnerships (UPPs) helped me to understand the chronosystem's importance on the practitioners' perspectives of the ACTNOW UPP.

I have also mastered the *develop and evaluate physical activity interventions in diverse community settings* competency by doing exactly this as part of my thesis and the products resulting from them. I have used this experience to investigate readiness for change with my

colleagues in Norway, to help to develop PA interventions using the individual and organizational readiness as a way to tailor PA interventions to the application context.

Finally, I demonstrated the competency, *create evidence-based strategies to promote physical activity and communicate them to community stakeholders*, by developing the strategies for dissemination of the results via academic publications and presentations, and by presenting some of these results to practitioners and researchers at the Active Living conference and OMEP 2025.

Table 14. Summary of MPH Emphasis Area Competencies

<i>PHPA Emphasis Area Competency</i>		<i>Description of Competency</i>
1	<i>Population health</i>	Investigate the impact of physical activity on population health and disease outcomes.
2	<i>Social, behavioral and environmental influences</i>	Investigate social, behavioral and environmental factors that contribute to participation in physical activity.
3	<i>Theory application</i>	Examine and select social and behavioral theories and frameworks for physical activity programs in community settings.
4	<i>Developing and evaluating physical activities interventions</i>	Develop and evaluate physical activity interventions in diverse community settings.
5	<i>Support evidence-based practice</i>	Create evidence-based strategies to promote physical activity and communicate them to community stakeholders.