

Manifesting learning in the workplace: an activity theoretical study of professional learning in preschool using active learning classrooms

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Abstract

Purpose – The purpose of this study is the development of a methodology that draws on activity theory (AT) to assess educators' and leaders' professional learning in a pre-school setting.

Design/methodology/approach – The paper reports on a case study of professional development in an active learning classroom (ALC) where 20 professionals participated in a one-day writing workshop. AT was used to analyse the writing workshop as well as data from reflective writing, video recordings, interviews and surveys.

Findings – The paper shows that professional development is significantly influenced by a range of mediating technologies used in educational spaces such as the ALC. The mediated practice breaks normal work practice in the pre-school activity system and division of labour roles, and hierarchical positions and professional relationships. Such a break is considered to facilitate a manifestation of professional learning. However, it also poses a risk for organisational disruptions emphasising the need for diagnostic understanding when an ALC should be used for capturing workplace learning.

Practical implications – Structured writing workshops – taking place in ALCs – provide a suitable forum that breaks with routines, accelerates collective reflections and articulation of negotiated meaning and produces a common ground across hierarchical roles supporting collective professional development in the activity system.

Originality/value – Unlike previous research focusing on student perspectives, this study views these spaces as settings for professionals to recognise and solve developmental problems. It suggests that structured writing workshops in ALCs can accelerate collective reflection and support collective professional development across hierarchical roles.

Keywords Mixed methodologies, Qualitative, Continuing professional development, Activity theory, Workplace learning, Active learning classroom, Educational spaces

Paper type Research paper



Introduction

This paper explores the embeddedness of professional work and learning within educational environments as places of work.

We describe the challenges and opportunities faced by 20 preschool staff members, working at different schools, within a shared policy context of one Swedish municipality. We study how they captured and articulated their experiences and competence development, as well as how they collaboratively accelerated this articulation capacity with support, guidance and material means. For some years before this research study, these busy professionals had been prioritising activities in their workplace pragmatically: seeking to optimise their schools' work and learning routines, meeting the demands of curricula and pursuing successful outcomes for top-down projects. A pan-municipality investigation was initiated, two years prior to this paper, to examine educational workers' competence and confidence and to generate proposals for organisational development that involved educators and leaders themselves in formative evaluation, described as "supporting an innovation in real time as it is being created" (Baldwin, 2020, p. 28). The investigation exposed a notable concern – widespread among the municipality's preschool staff – of undesirable inequalities regarding how young children were being supported. Specific problematic areas were identified: in educational processes for language development; in the availability and use of digital tools; and in the application of pedagogical practices in language learning with young children.

Attempting to assist educators in breaking such patterns, the municipality's political stakeholders undertook to enhance sectoral competence with digital technologies. The municipality's leadership focused on the developmental opportunities for educational workers in preschool settings, those who introduce children to technologies for the "development of creative abilities [...] the further development of the child [and] the development of creative thinking in children" (Zizikova *et al.*, 2023). An intervention was implemented for the educators, a process approach which was sustained over a two-year period, promoting continuous professional development with a focus on digital technologies.

The process' impetus was captured in the phrase "Get to know your own device" or "GYD." To provide focus, there was blatant promotion of digital tools in the initiative that aligned with a shift in the preschool curriculum, necessitating educators in preschool settings to attain confidence and competence with classroom technologies. The organisation of workplace practices in the GYD initiative sought to focus educators and leaders on professional development in three areas: the language development of young children using digital tools; pedagogical models suited to teaching and learning with young children; and leadership models to integrate and maintain development in everyday practice.

Following two years of sustaining the GYD initiative in their workplaces, the experiences and observations of educators and leaders were generally positive. Yet, in similarity with previous studies (e.g. Lemos and Engeström, 2018), there were shared frustrations, including tensions in understanding the implications for managerial and political roles in the professional development of managerial stakeholders and politicians. Communication challenges arose with managers and politicians, from outside preschool settings, who held influence and interest with an educational portfolio yet had no direct contemporary experience of schools. To negotiate and clearly elucidate the participants' shared findings of the GYD initiative, a writing workshop was arranged for 20 of the municipality's preschool educators and leaders. They were invited to a dedicated physical setting, away from their workplaces, arranged by the lead author of this paper, through a series of structured activities in an active learning classroom (ALC) during the one-day workshop. ALCs are associated with technology-rich, convivial, socially constitutive spaces, generally used in collaborative learning. This use of an ALC, for the professional development of educators and leaders, is a

niche yet lucrative example of “how ALCs can lead to improvements in the campus curriculum as a whole” (Van Horne and Murniati, 2016, p. 77).

The writing workshop we describe below engaged the preschool professionals in forming small groups, undertaking reflexive tasks about their workplace activities and collaboratively examining legitimate concerns related to their own development as educators and leaders. Through these activities participants tried to normalise *contradictory social circumstances*, and to “make it clear that workplace learning is a contested terrain” (Engeström, 2008, p. 183). The task outputs comprised written accounts of their development and their further potential. Such workshops are known as writing workshops, noting that many other developmental activities take place alongside writing. Furthermore, breaking with routines has been highlighted as beneficial when working with change (Bucher and Langely, 2015) to move beyond the “paradox of embedded agency” (Seo and Creed, 2002) meaning that professionals are often driven by their locally developed competence, at the same time as this achieved competence is in need of change.

Groups presented these abstracts to the plenary of peers, to socially negotiate the *material implications* of the GYD initiative for their professional development. They collaboratively created and shared reflexive artefacts in the ALC, to “examine how those materials merge with the social context around them” (Leonardi, 2017, p. 285), to negotiate the *social meaning* of their joint work. These task outputs were subsequently analysed using activity systems analysis (ASA) techniques (Yamagata-Lynch, 2010). ASA allowed us to examine the potential of these writing workshops to create material artefacts in ALCs, and to design further collaborations as “planning solutions to contribute to complicated work-based problems” (p. 37).

Our core argument in this paper is that reflexive professional developmental practices for educators and leaders can be materialised in an ALC, legitimising their contradictory social circumstances as a rich seam of evidence of change and potential, where educational spaces are recognised as settings for educators’ and leaders work rather than solely as spaces for learning. Following a review of literature in cognate fields and a description of our theoretical framework, we present as a case study our instantiation of a structured writing workshop in an ALC, where 20 preschool professionals working in groups completed collaboratively written abstracts, empowering them to undertake material and collaborative reflection, to negotiate the social meaning of professional development. We respond to the following research questions: How did experiences in a writing workshop in an ALC setting assist the professional development of educators and leaders, for whom in groups settings are their workplaces, and how were the material arrangements of the ALC influential in this professional development?

Literature review

A concise narrative review is presented below, of peer-reviewed empirical papers examining themes of ALCs and professional development in selected current scholarship. We seek to position our current paper against a backdrop of such scholarship, illustrating our contribution at the juncture of three themes which characterise our study of ALCs and professional development: technology-rich environments; spaces for social learning; and sites of critical engagement.

ALCs as technology-rich environments

In one body of literature, we find researchers who examine ALCs for their association with providing learners with plentiful, contemporary, accessible technologies (see, e.g. Beaudry, 2022; Casanova *et al.*, 2020; Talbert and Mor-Avi, 2019). We note, however, that there is

scant reference to how such technologies might ease the work of educators in these environments, aside from a burgeoning body of scholars who critically compare teaching in high-technology and low-technology spaces (e.g. Nicol *et al.*, 2017). Notably, some of the most impactful technologies affecting the professional work of educators go unnoticed, at least until they fail, having a characteristic of “powerful banality” (Mosco, 2005, p. 20) such as connectivity to the internet, mains electricity, coordinated time, moveable furniture, environmental and climate control, and polycentric architecture to promote a socially constitutive use of space. We recognise that technologies which mediate the work of educators in ALCs interact in constellations, often in ways which are banal yet highly consequential: chairs and desks that can be selected and arranged by participants; temperature, light and noise controls that are adjustable by occupants themselves; horizontal and flat surfaces – both digital and non-digital – which can be accessed and adapted with ease and immediacy. Our current paper investigates these mediating technologies, contributing to an underdeveloped area of how they become instruments in use, undertaken from the perspectives of educators for whom technology-rich ALCs are workplaces.

ALCs as spaces for social learning

Our second body of literature concerns ALCs as spaces enabling learning which is inherently social, and which has been historically differentiated from places which constrain learning through one-to-many didactic approaches, in traditional spaces, in which power relations are unequal. Such constraints can result in successful learning being measured by students merely reaching the requisite seat-time (see, e.g. Baepler *et al.*, 2014; Chiu and Cheng, 2016; Vujovic *et al.*, 2021). In contrast, social learning in ALCs has widespread endorsement, with occasional counterinterviews that tend to be raised by those researching implications for marginalised students, challenging assumptions that they can directly engage in social interactions (see, e.g. Nardo *et al.*, 2022). While socially motivated learners are irrefutably important, we find a unilateral focus to be of some concern, in ways related to Biesta’s (2009, p. 36) concerns for the creeping trend of “learnification” where educational concerns are expressed solely in terms of learning. For us, focusing on the social learning that takes place in these spaces carries a significant risk of occluding the consideration of the professional work of educators, who in turn hold a responsibility to many educational stakeholders. We recognise the value of social learning in ALCs, yet learning cannot take place in a vacuum; in our study we recognise that there is a need to recognise the professional work of teachers, whose work includes – yet is not solely – the facilitation of learning, with implications for ALCs as workplaces.

ALCs as sites of critical engagement

In our third grouping of literature, we find studies where ALCs are associated with critical engagement, a notion usually framed as critical thinking, critical problem-solving, critical reflection and critical sense-making, through interactions and negotiations with others (see, e.g. Copridge *et al.*, 2021; Marshall, 2018; Quaicoe *et al.*, 2023). Criticality is increasingly presented as an educational ideal, aligning with the intended pedagogical uses of ALCs, yet criticality *in and of itself* is not usually the motive of education. The social motive – the object of educational activity – is difficult to define:

“[...] the object is not reducible to conscious goals; those are connected to discrete and relatively short-lived actions. The object of an activity is typically difficult to define for the participants” (Sannino and Engeström, 2018, p. 46).

We recognise that the activity taking place in an ALC necessitates critical social negotiation, yet it ought to be oriented toward a social motive, a material purpose for the activity. This object can be influenced by students, yet it is inevitably governed and shaped by people and events beyond those directly involved – the community – with a recognition of broader professional practice beyond direct teaching and learning interactions. Our paper contributes a modest yet qualitatively important acknowledgement of the material purpose of active learning, in which we foreground the importance of understanding the object, which orients all that happens in an ALC, including those for whom the setting is their workplace.

To close our concise review of literature, we seek to position our contribution at the juncture of these three themes: we contribute an original study of the professional development of educators and leaders, for whom ALCs are mediated by diverse technologies; we recognise ALCs as settings for complex professional activity, and we promote the critical engagement of wider practice, beyond solely teaching and learning interactions. At this juncture, our paper seeks to make a qualitatively important contribution, with implications for local educational practice, for meso-level policy tensions and for scholarship. The subsequent section sets a theoretical framework of AT, used in the remainder of the paper, through which we analysed interactions in the ALC.

Theoretical framework

As activity theorists, we subscribe to a view of professional work and learning as multiple interacting systems of activities:

“[...] in which knowing is inseparable from doing, and learning is a social and not merely a cognitive activity [...] understanding human action requires one to focus on the entire social and historical context of that action” (Nicolini *et al.*, 2003, p. 8).

AT is established in the examination of social and historical context in workplace learning and professional development (Engeström, 2008, 2013). Activity theoretical processes have empowered people in a range of professional work and learning settings in situations when structure and culture interact. In such circumstances, the artefact mediation of developmental activity can be material or ideal, or both (Postholm, 2015). In the current paper, we focus – somewhat reductively, yet in qualitatively meaningful ways – on technological mediation, both digital and non-digital, concerned with the physical arrangements in ALCs, to “uncover the ways in which people perceive those materials and make use of them” (Leonardi, 2017, p. 282), investigating experiences of, and potential for, professional development.

AT can represent social activity as a modelled system, where a collective subject (the group directly involved) is oriented to an object (the material purpose and social motive). This subject-object relationship is mediated by artefacts. A graphical activity system illustrates these elements and their interactions, with activity’s important yet less visible social mediators: rules, which regulate activity, formally and informally; community, the people beyond the subject, who have interest and influence in the activity; and the division of labour, describing how the activity’s roles and rewards are distributed amongst the social group. The outcome of this object-oriented activity is sometimes described as the object with further sensemaking and meaningful consequences, both foreseen and unforeseen. Contradictions are important drivers of development and change in activity, although they are seldom directly evident. Contradictions are systemic tensions between or within elements of activity, indicating the potential for change (Foot, 2014), represented in four forms with AT:

- (1) Primary contradictions can exist within an element, between direct value for purposeful use and the exchange value in a transaction.

- (2) Secondary contradictions occur between two elements in conflict, exposing tensions between both.
- (3) Tertiary contradictions arise through time and cultural advancement, between old and new elements of activity.
- (4) Lastly, quaternary contradictions arise between the central activity and its adjacent activities, which share the activity's object.

Workplace learning is often theorised as a vertical process of increased competence. However, AT enables the theorisation of more intriguing kinds of learning in work organisations, violating presuppositions that workers, managers and others already know what should be learned and how it should be learned. AT allows the examination of complex work and learning in organisations, normalising and legitimising experiences of irregularities and unpredicted events (Engeström, 2008). These contradictory social circumstances have been used to theorise problems and development elsewhere. In studies similar to those in our current paper, that have applied AT, educators seek to promote innovative language learning with students (Chang, 2021; Becerra-Lubies and Varghese, 2019), digital projects and leadership in schools (Pettersson, 2020) and professional development to enhance the classroom practices of teachers (Webb and Jones, 2009). The subsequent section sets out our research design.

Research design

The research design comprises a single case study. Drawing on Tight (2017) a deeply contextualised study can provide a meaningful and transferable example of work and learning, without claims of widespread generalisability. A writing workshop in an ALC was orchestrated by this paper's lead author, to collectively produce and share material accounts of experiences and observations of two years of sustaining the GYD initiative in their workplaces. Writing workshops – noting that many other developmental activities take place alongside writing – provide educators and leaders with an opportunity to explore how:

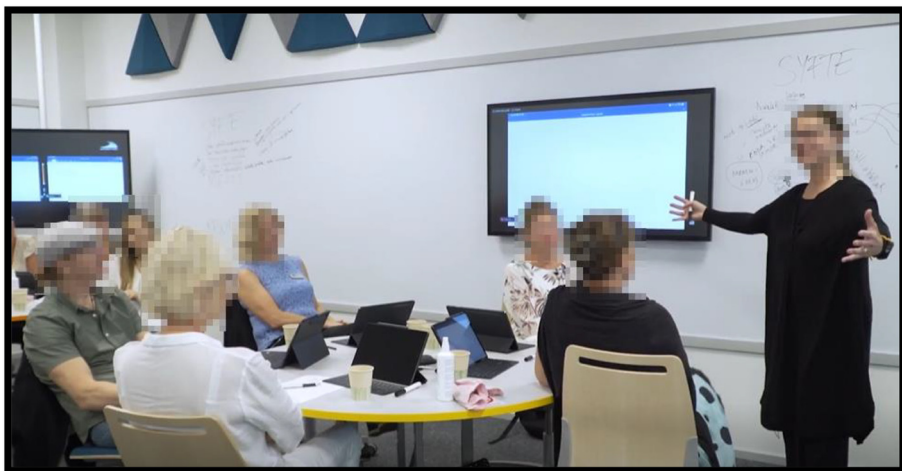
“[...] writing as a technology means attending to its capacity to mediate activity, a process similar to what instructors do when lessons with classroom technologies [...] making purposeful connections among technologies—digital and nondigital, visible and invisible” (Buchenot and Roman, 2019, p. 90).

While it is not common to use an ALC for professional development, the activity and tasks were built upon previous research where interactive pedagogy in ALCs increased equal participation and reduced positional discrimination (Park and Choi, 2014). ALCs can provide a supportive environment for enhancing the interaction of participants (Johnson *et al.*, 2020), increasing engagement (Chacón-Díaz, 2020) and supporting creativity and innovation (Chiu and Cheng, 2016). AT's role in our analyses of the writing workshop contributed to commonly observed methodological shortfalls in research of ALCs, where there are concerns about which aspects of practice have the stronger influence on engagement and learning (Metzger and Langley, 2020).

With AT, technological artefacts – including the architecture and furniture of ALCs themselves, and the enveloping material arrangements – mediate a subject's pursuit of an object. Despite the difficulties delineating the main explanatory factors of experiences and engagement in ALCs, prior research emphasises the need to create dynamic actions to maximise the material capacities of the room. While the literature focuses almost entirely on student learning, we focused on professional educators and leaders, with tasks in the writing workshop to engage in the object of identifying and sharing experiences of professional development for language learning through GYD. The physical room in which the writing

workshop was conducted was approximately 90 square meters. The room contained seven tables and seven screens attached to the wall close to each table. The round tables, arranged in a circle in the room, each had the capacity for seven chairs. It was also possible to write on the walls due to the specific type of wall covering. Each table could project laptop screens on an allocated bigger screen on the walls, visible to the plenary. Furthermore, the screen could be shared, so that each table's connected screen could have the same projected content for all participants. An image of one of the small groups forming the plenary is shown in [Figure 1](#).

The social organisation of small groups of educators and leaders in the writing workshop was linked to their roles in professional groups across the municipality. Five groups worked together during the writing workshop, totalling 20 participants: Group 1 – five principals from different preschools; Group 2 – five preschool teachers with roles as digital developers; Group 3 – three preschool teachers in a pedagogical development role; Group 4 – five preschool teachers with responsibility in supporting the language development of the children; and Group 5 – the municipality's preschool manager, and the process leader of the overall initiative. A series of collaborative tasks led to the creation and sharing of a written abstract from each group, of 250–300 words, to capture the lessons learned from the municipality's GYD initiative. The abstract had an additional purpose, which was to contribute, at a later date, to a conference related to work integrated learning, at the university where the writing workshop was held; participants were encouraged to present at the conference. All groups created an abstract during the seminar. Data were captured in various forms during the writing workshop, for subsequent interpretative analyses ([Braun and Clarke, 2006](#)) followed by ASA in the style of [Yamagata-Lynch's \(2010\)](#) work in developing educational activity, where researchers construct and examine a graphical representation of technology-mediated, socially negotiated, human activity to identify opportunities for increasing understanding and potential for development. As is common in ASA, the object of activity was derived by us as researchers, in relation to the writing workshop's purpose. ASA presented a means for subsequent, non-dualist, qualitatively meaningful examination of participant's experiences and perspectives ([Yamagata-Lynch, 2010](#)).



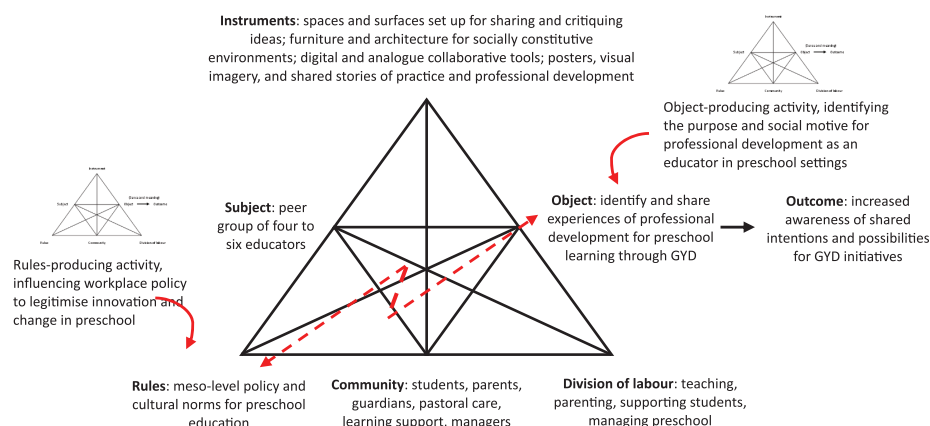
Source: Authors' own work

Figure 1. Collaborative activity in the writing workshop

Digital audio and video data were available from the start of the seminar at 0900 h and completed at 1500 h. Textual and graphical data created by the educators and leaders in the ALC supplemented these audio and video data, with semi-structured interviews in addition to a survey. All 20 participants were active in the seminar, and were represented in audio and video data, with 13 of these participants responding to the interview and survey. The primary focus of the interpretive analytical processes of these data was to capture developmental experiences and further potential, directly confronting the problematic social circumstances of the GYD initiative. Following these interpretive analyses, ASA was conducted using the abstracts that had been developed by the groups, which they presented to the plenary. Data were initially analysed interpretively, to capture experiences of professional development, both expected and unexpected. The technique of interpretive analysis used at this stage has been used in research using AT principles with similar problematic social circumstances for educators (e.g. Chang, 2021; Spante *et al.*, 2021). The additional analysis with ASA has been used at similar junctures of work and learning (see, e.g. Yamagata-Lynch *et al.*, 2017), and its purpose in this project was to inform us of the possibility and shape of further developmental potential with the educators and leaders involved in the GYD initiative. An illustration of ASA in progress is shown at Figure 2, adapted from an original by Engeström (1987/2015, p. 71). The figure illustrates a central activity for our research: a peer group of educators (subject) identify and share experiences (object), mediated by a constellation of material arrangements in the ALC (instruments). They are regulated by national and municipal policy and by cultural norms (rules). They are influenced by political, educational and familial stakeholders (community). Tasks are allocated according to hierarchy and specialisation (division of labour). Also shown are the object-producing activity and the rules-producing activity. The figure exemplifies our identification of a secondary contradiction – one of four types described above – between an activity's rules and its object, illustrated in the triangular depicted activity systems as a dashed bolt of lightning.

Findings

Our narrative analyses and ASA findings indicate that educators and leaders in the writing workshop, mediated by the constellation of material artefacts in the ALC, reflected in



Source: Adapted from an original in Engeström (1987/2015, p. 71)

Figure 2. Illustration of ASA, showing a secondary contradiction between an activity's rules and object

qualitatively meaningful ways upon each other's accounts with words such as "inspirational", "developing" and "educational" being emphasised in the survey. Furthermore, we argue that the data supported interpretations of the relevance of experiences for the further potential of the GYD initiative, and the social negotiation of the material purpose and motive of preschool in the municipality, articulated in the discussions as well as in their written abstract (see [Table 1](#) below). All participants claimed to find the writing workshop relevant for professional development, experiencing as beneficial the conception of educational spaces as workplaces, emphasizing that it was "challenging", "nervous" and "tumultuous". The material arrangements of the ALC were vital for making shared proposals concrete, with participants learning in more qualitatively meaningful ways when writing together, in focused and interactive ways mediated by the material arrangements of the ALC. Yet these overall findings were pre-empted by more problematic interactions. In early tasks, participants continuously expressed frustration. An initial task was to formulate their aims and expectations of the day itself, and to problematise the GYD initiative; this was notably problematic, with such actions perceived as interwoven into everyday practices, and mundane: "This is not really something special" was claimed in opening the seminar. When asked in closing, why the writing workshop had succeeded, all participants became motivated to describe what they had achieved as groups. All of the groups wrote a meaningful abstract on their experiences of development, and unexpected learning with further developmental potential, summarised in [Table 1](#).

In analysing data through ASA and narrative analyses, all groups explicated development, and articulated further developmental potential, overcoming their initial difficulties with specifying problems and outcomes of the GYD initiative. A notable secondary contradiction to emerge in ASA was between the rules and the object of the activity, as previously illustrated in [Figure 2](#). This was persistent and proved to have a rich potential for further development. As an example, the changing view on "screen time" was identified as important for professional development (shown in the tabulated entry for Group 1), emerging from a contradiction between the object and the rules, the latter representing a cultural norm in which screen time was perceived as wasted time. A further example is provided by the focused awareness of language in experiences of professional development that grew during the GYD process initiative (the tabulated entry for Group 4). Innovations in language awareness, reading and learning had been enacted by the educator authoring that account. To recognise the professional development experiences and opportunities, they accounted for a workplace related motive (the object), mediated by visual imagery and accounts of similar innovations during the writing workshop. The potential for professional development necessitated changes to policy and normative behaviours, governing activity (new rules), to legitimise new approaches to promoting early childhood language development, and different ways of conducting language learning (shown in [Figure 2](#) as the rules-producing activity). In terms of ASA, this example illustrates: the role of the object in shaping the entirety of social activity; the role of the rules in regulating exchange and demand, both formally and informally; and the role of a lucrative secondary contradiction – here between the object and the rules – in shaping potential professional development opportunities.

All groups articulated how their GYD developmental processes were intertwined with daily practices, rather than professional development being implemented from above; an example being Group 2's tabulated entry describing incorporation of the zig-zag method. Other examples of unexpected learning and further potential are found among managers and colleagues in preschools in the municipality, but also among other members of the activity's community – children, parents and guardians were recognised as holding important influence and interest, holding contradictory relationships with other elements of activity, in particular

Table 1. Summaries of abstracts

Group and role	Summary of articulated experienced development during the GYD initiative	Summary of articulated unexpected learning and further developmental potential
1 Principals	“[...] a changed approach and development in colleagues' thinking about digital tools. The view of what “screen time” is has changed” “We use the digital tools in a more efficient way and see it as a supplement in the education”	“[...] both the colleagues' and the children's curiosity about various digital tools has been awakened [...] interest in using them has increased”
2 Digital developers	“[...] strengthening a group of guidance counselors and making them a strong team with change skills” “Each group has an individual development process [...] supported by a process manager and an operations manager who work based on the zig-zag method”	“The zig-zag method also takes its basis in being transparent to third parties”
3 Pedagogical developers	“[...] groups have been linked to an overarching mission and a common name, quality developer” “By moving physical meetings and learning to digital meetings, we also see an increased pedagogical exchange [...] increased pedagogical quality and equivalence between all our preschools”	“Greater collegial learning between our quality developers [...] common thread between our development areas within the groups and the own unit [...] pedagogical curiosity [...] both at and between our preschools”
4 Language developers	“Through a conscious development of our learning environments [...] an increased language awareness and desire to read and learn in the children.” “The form of linguistic continuing education, through quality language developers [...] all staff showing a greater commitment and desire for different forms of language learning”	“We have gained an increased interest and awareness of language work among our guardians thanks to the children repeating at home what they experienced at preschool”
5 Preschool manager and process leader	“We saw that it was easier to develop the activity when all educators had the same input and a common goal.” “The development work became relevant and meaningful when the focus area was integrated into the preschools' ongoing theme work”	“We saw clear examples of collegial learning in the form of shared experiences and how the educators inspired each other”

Source: Authors' own work

the regulation of activity (rules) and the allocation of responsibility (the division of labour). This notion was expressed by the participants as particularly rewarding and beneficial for envisioning further development, exemplified in Group 4's tabulated proposals for further development. By modelling these material proposals in the ALC, in ways which the plenary had visibility of, these educators and leaders became acutely aware that the articulation of their work was beneficial for communication with third party stakeholders. They recognised people who were not necessarily knowledgeable about preschool or the professional work of educators and leaders. These material acts, which were socially negotiated to expose and confront contradictions, identified solutions to problematic experiences of development, shaping their further proposals.

When asked about the reflexive experiences of the writing workshop itself, and the material arrangements of the ALC, educators and leaders noted the importance of a bounded physical space and time:

"It was good to be given time to reflect upon what and how we are working. Then it became clearer to see the actual development of our work, so it does leads to improvements." [Respondent 7]

"It was good to get it down on paper and articulate what we have done." [Respondent 8]

Respondents identified positive and qualitatively meaningful interactions during group work, listening to others during the day, and taking an active role during collective writing in the ALC. They particularly liked the way walls were used to opportunistically write on and share proposals, but also how shared screens were used to project ongoing textual ideas in the making, to have each other as critical resources for the purpose of clarification:

"It was important to get all involved and included to understand that we are a collective that develops together." [Respondent 6]

"We are on the same path towards a more mutual mindset and a common understanding that we really felt during this day in the room." [Respondent 10]

Words such as "hopeful", "pride" and "empowering" coming from the participants were accompanied by initially downplaying achievements, which were attributed to everyday practice. When reflecting and asked by others in the plenary to articulate findings, educators and leaders expressed their contributions to preschool organisations in a much clearer way and with joyful insights. On a related note, all groups experienced equitable contribution, despite the various hierarchical and managerial roles present in the ALC's plenary. After an initial period of familiarisation, the educators and leaders in their small groups (the activity's collective subject) were able to focus on the material purpose (their activity's object) and the material resources available to them (the mediating artefacts), paying scant attention towards the hierarchy in creating their joint abstracts:

"That more professional groups participate with their interest, experience and engagement but also to become challenged further in each professional role leading towards collective learning." [Respondent 9]

They enjoyed a sense of genuine collaboration when presenting to the plenary – which included moments of socially antagonistic interactions. All participants said they had a sensation of equitable participation throughout the writing workshop, focusing on the material purpose of their developmental activity rather than each other's rank and status. The observation that could be made regarding the writing workshop is that normal workplace roles seemed to recede into the background, while the focus on collective articulation – to grasp the meaning of experienced success in the GYD implementation work – was foregrounded.

Discussion

Our study demonstrated that breaking hierarchical roles and normal divisions of labour, in the activity system of preschool education in a municipality in Sweden, led to ownership of the lessons learned and agency in experiencing collective articulation. Our study showed – in similarity with [Bucher and Langely \(2015\)](#) – that collective interaction outside structural routine became vital for enabling workplace learning and competence development. In such initiative, there ought to be room for the collective articulation and collaborative manifestation of project experiences through writing tasks. The ALC became a genuinely socially constitutive space, focusing on the community as distinct from individuals ([Bligh and Crook, 2017](#)). The intense interaction with the task, by small groups and the plenary, became a source of social support for the creation and curation of a shared material outcome – the written abstract. This shaped the group dynamic, as educators and leaders focused on the object of their activity, which was to explicate developmental experiences and to enact material proposals. The physical arrangements of the ALC appeared to occlude rank and status, allowing a focus on the object and the lucrative secondary contradictions for development, yet it is unclear whether the ALC is the main explanatory factor *per se*. The ALC did provide material arrangements to support experiences and further developmental opportunities for educators and leaders, arising from their two-year GYD initiative. In addition, the ALC combined with the writing task mediated their efforts and supported the visualisation of the negotiated formulation of how to articulate their experiences. Furthermore, when educators and leaders socially negotiated their development, linkages between groups were identified, the abstract as a mediating artefact further fuelling their collective discussions of experiences as a plenary, and their future-oriented proposals.

In the opening of this paper, we described how ALCs have been frequently framed as technology-rich environments ([Beaudry, 2022](#); [Casanova et al., 2020](#); [Talbert and Mor-Avi, 2019](#)) in which the notion of technology is often conflated with digital hardware, digital media and digital platforms. Our findings show that digital and non-digital technologies interact in constellations, with each other, to mediate activity often in unexpected ways, and in ways which are often powerfully banal ([Mosco, 2005](#)): educators and leaders were attracted to writing on walls, to controlling their own environment and arranging classroom in socially meaningful ways. We also described a body of literature which focused on ALCs as social spaces for learners to be freed from traditional didactic approaches ([Baepler et al., 2014](#); [Chiu and Cheng, 2016](#); [Vujovic et al., 2021](#)). Our findings suggest that ALCs also offer mediating professional development, allowing educators and leaders to take the advantage of a temporary eyrie, a space from which to materially consider, model and critique their workplace, countering the “learnification” of education and educational research ([Biesta, 2009](#), p. 36) to recognise the importance in education of professional work and its material arrangements. The third body of research we used in our categorisation was where ALCs are sites for critical engagement, through interactions and negotiations with others ([Copridge et al., 2021](#); [Marshall, 2018](#); [Quaicoe et al., 2023](#)). Our study exemplifies the importance of object-oriented activity for genuine criticality ([Sannino and Engeström, 2018](#)), where these educators and leaders engage critically, occluding each other’s rank and status, with a shared focus on the material purpose and social motive of their activity to create developmental accounts in the writing workshop, mediated by the physical arrangements of the ALC.

This study suggests that there was significant qualitative value in breaking educators’ and leaders’ historically developed and pragmatic workplace habits, freeing them from a routine of lurching from one project to another, liberating them from a focus on optimising a work routine and allowing them to concentrate on material arrangements for their professional development. The tools of the room in combination with the structured writing task became a method that

supported a shift from vague expressions of professional development to concrete articulation of what became collectively negotiated and commonly decided in the creation of the required text. During the day, with support from the workshop facilitator, participants engaged in group writing activities, with continuous presentations in plenary sessions. These sessions focused on text development and content, allowing for a shared experience of capturing and communicating professional development from the GYD project. The transition from the everyday context of working in various locations and roles within preschool activities across different municipalities to the de-contextualised environment of the ALC facilitated the collective articulation of lessons learned and meaningful expressions of professional development by the GYD project. A one-day writing workshop might seem like a time-consuming activity, and an ALC might seem like a significant resource to occupy, yet this study shows the possibilities and material implications for the development of educators, for whom educational spaces are their workplaces. The group articulated material capacities for their own development, with implications for wider work and learning in educational settings. However, there is also a need to raise some problematic issues. In contrast to using experimental spaces for the creation of novel ideas in organisations (Bucher and Langely, 2015), this study showed that using experimental spaces could be a significant support for negotiating collective articulation of professional experiences and competence development opportunities at workplaces.

Despite the positive aspect of breaking with routines in experimental spaces, in our case an ALC with an associated collective writing task, we recognise a risk to be considered. A break with routine might also create a disruptive deviation from the normative interactions of educators and their leaders, placing significant burden on the participants, and outcomes such as those we experienced might not be accomplished. It would be a mistake to view the ALC from a technological deterministic point of view, as if the mediating tool in itself could produce these expansive results. Hence, the need for an early activity system interpretation and diagnostic of the situation, to assess whether mediated and collaborative articulation is viable and feasible, or whether a more routine managerial intervention would instead be appropriate. In this case, the result clearly indicates the added value of collective and collaborative articulation of experiences, by the mediation of the ALC, in combination with the writing task for workplace learning within the activity systems of preschools.

Conclusion

This paper has presented an example of reflexive practice for educators and leaders, whose professional development activity was mediated and materialised in an ALC, legitimising their contradictory social circumstances in conceiving of educational spaces as settings for professional work rather than solely as spaces for learning. Prior to this research, these busy educators and leaders had prioritised their work pragmatically: seeking to optimise routines, meeting the demands of curricula and pursuing successful outcomes for top-down projects. The study's tasks, with outcomes analysed with narrative analysis and ASA, illustrate qualitatively important developmental opportunities for these professionals: calling upon mediating instruments to develop a socially constitutive use of space; recognising the importance of social and cultural mediation in their interactions with others; and negotiating the object of their collective developmental work. In situations where there is a need to capture workplace learning, it is suggested that participants should take part in the concrete articulation of their experiences and future-oriented proposals. Such an approach allows and empowers them to manifest their development professionally, agentially and collaboratively, irrespective of their individual experiences. Our next steps seek to be more expansive, building on this study in moving toward dialectic change with educators and leaders.

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