

Why, how, and with what payoff? A critical review of cultural-historical activity theory in work-integrated learning research

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Abstract

Cultural-historical activity theory (CHAT) has been used extensively in research on learning in workplaces but less so in the related field of work-integrated learning (WIL). The aim of this article is to examine how CHAT is currently used in WIL research and so to address its current use and potential for this field. The research broadly followed a semi-systematic review method to locate 27 articles which examined WIL through a CHAT approach. This critical review examines each article through the lenses of why and how authors have utilized the CHAT methodology. Most selected articles highlight CHAT's usefulness as providing a systemic, multi-voiced analytic tool which highlights, through identifying tensions and contradictions within the system, impediments and enablements to successful WIL practice. The study concludes that CHAT is well suited to examine the situated and sometimes problematic nature of WIL. However, the authors suggest that more attention could be paid to contradiction analysis and formative interventions, in particular through how they may promote a more critical WIL, in order to gain maximum benefit from the theory.

Keywords: Contradictions, Cultural-historical activity theory, Work-integrated learning,

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Introduction

Cultural-historical activity theory (CHAT) is characterized by its focus on the object of human activity modelled through the analytic unit of the activity system. The dynamic nature of the system is driven through the emergence of contradictions which are also points for development (Engeström & Sannino, 2021). CHAT has been used extensively in work study research, for example in manufacturing, IT, journalism and health sites. The use of CHAT is also evident in higher education studies; for example, Bligh and Flood (2017) reviewed the use of CHAT in higher education, detailing 59 empirical articles (though the extent of research would likely be more widespread today). However, CHAT has been less well utilized in examining the interface between these two sites, as occurs in university and workplace collaboration in work-integrated learning (WIL) initiatives.

The rationale for conducting the research is twofold. Firstly, CHAT is still a relative newcomer to WIL research but is increasingly being used. It would thus be useful to assess what insights CHAT may offer to the field, and to provide a synthesis of the different aspects of WIL that have been addressed through CHAT. Furthermore, Fleming and Zegwaard (2018) suggest that much of mainstream WIL research was in the past quantitative and descriptive in nature. From their perspective there is thus a need for more theoretically-based and explanatory research, such as through CHAT and other theoretical approaches, in order to capture the complexities of WIL.

Secondly, one role of the university can be understood as creating democratically orientated citizens who can act as change agents within a rapidly changing society (Barnett, 2004). University pedagogies would thus be expected to support and develop these dispositions in students. However, such critical pedagogical approaches are not always apparent in the way in which WIL is conducted (Piper et al., 2023). Critical scholars of WIL have emphasized that there is a risk with the focus on employability and current system efficiency, rather than developing dispositions to imagine something new and work towards that (Piper et al., 2023). Such a critique begs the question of how WIL research and development can become more critical of current practices rather than simply preserving the system as it stands. CHAT has a long history of critically challenging the status quo through addressing significant societal and educational issues. For example, Engeström and Sannino (2021) used CHAT to address the seemingly intractable problem of homelessness; Scahill and Bligh (2025) addressed the re-orientation of an academic institution from inertia to work with the active integration of sustainability; and Bal (2016) highlighted how disciplinary actions in schools are often distributed disproportionately according to race, and how such actions could be challenged and transformed. The article thus further examines the extent to which WIL-CHAT research may fulfil this role.

The purpose of the review is thus to show the scope of the current WIL-CHAT research. To this end the prospective reasons given by authors for their use of CHAT in WIL research is examined. Typically, this can be found in the article's introduction. Moreover, the scoping exercise would benefit from knowing which elements or principles of CHAT researchers have focused on in conducting their research, which can usually be found in the methods section. Furthermore, it is also useful to know in retrospect what aspects of CHAT are highlighted by authors as providing particular insights into their WIL research. This is typically represented in the discussion/conclusion of the articles. These perspectives described above of 'why', 'how' and reflections on advantages offered by CHAT are broadly in accord with Bligh and Flood's (2017) dimensions used in their review of CHAT in higher education.

As this is a critical review (Evans et al., 2012), attention is paid to why CHAT may be particularly appropriate for WIL research. In addition, some of the shortcomings of current WIL-CHAT research are highlighted, and potential avenues for further research are outlined. The aim of this research is thus to highlight and clarify how CHAT as a theoretical framework informs WIL research from a more critical perspective, and expands its scope to move beyond the individual towards a dynamic organisational focus addressing change and development.

The scope of this review is restricted to learning partnerships between higher education institutions and workplaces, following the WIL definition put forward by Zegwaard et al. (2023). Smith (2012), Zegwaard et al. (2023), Piper et al. (2023) and Ferns et al. (2025) describe a number of principles which underpin the design and delivery of WIL. One principle is that WIL should integrate theory and practice across the different institutions of work and education. Linked to this is that different interests and purposes of stakeholders need to be represented and ideally balanced for mutual benefit. Another principle concerns what students actually do in WIL which should be authentic and situated, i.e. representative of real and significant practices of workplaces, and the sorts of thinking valued at work. WIL should be participative, involving the active engagement of students in practices, which in turn necessitates working with others. Such practices should,

furthermore, support students' development of problem-solving abilities and ability to deal with uncertainties (Ferns et al., 2025). Finally, and inherent to the above dimensions, WIL is primarily about student learning (Zegwaard et al., 2023). It is thus a form of pedagogy. However, it is not just necessarily the students who are learning and developing; WIL can also inform changes to university curricula. Drawing from the above discussion, the important characteristics of WIL in the literature can be summarized as: integrative between university and workplaces, involving multiple stakeholders, authentic and situated, involving problem-solving/uncertainty and participative and developmental.

An overview of CHAT research

CHAT examines how people engage collaboratively in meaningful, object-orientated activities. More short-term, goal orientated actions of different actors are subsumed within and given meaning by the activity as a whole. Understanding the action-activity relationship allows the researcher to capture the complex and often tension-ridden nature of activities (Engeström, 2001). The unit of analysis is the activity system in which people's work is directed at a collectively understood object. Such work is mediated through the resources or tools they have at their disposal, and the actions of the broader community that also have an interest in this activity (Ploettner & Tresserras, 2016; Engeström, 2001). Thus the activity system is traditionally represented as an interactive triangle (Figure 1) with the following components: The subjects who are the people from whose perspective the activity is being examined; the tools which denote the resources (other people, knowledge, artefacts, processes, for example) the subjects may use to work on the object of the activity; the community which comprises all other people who influence work on the object; the division of labour which describes the different roles performed by community members and their different positions of authority; and the rules which are the overt and tacit conditions which influence the subjects' and broader communities' engagement with the object (Dinh & Sannino, 2024).

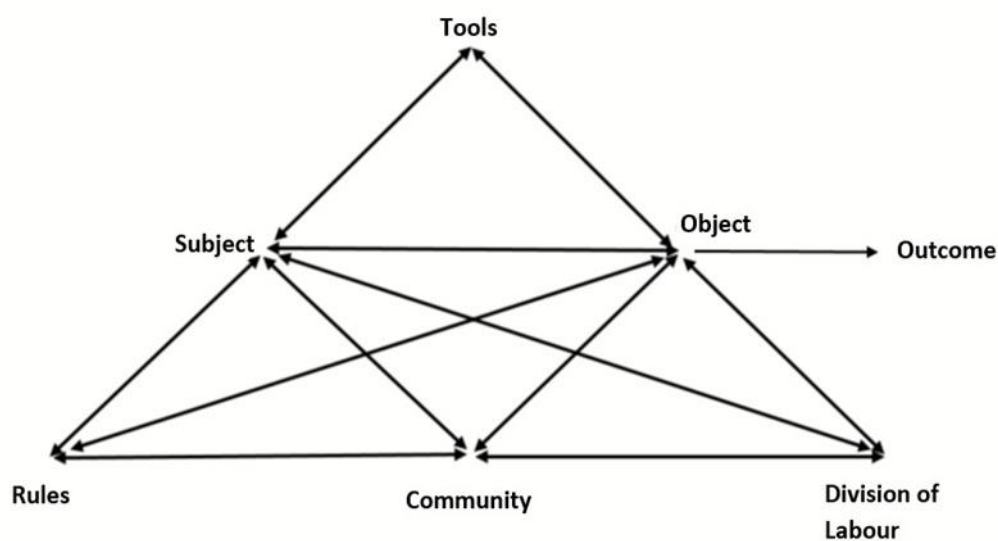


Figure 1: A model of an activity system (Engeström 2008, 26)

Engeström (2001) outlines the key principles underlying CHAT, beginning with the concept of participants object-directed work within the activity system being mediated through their use of tools, the actions of different members of the system and the rules under which they operate. The system itself is not static but is rather historically rooted and constantly evolving as conditions change or new actors enter the system, leading to difficulties in the smooth running of the activity. These difficulties can be understood as systematic and historically influenced contradictions within the activity system. Rather than being seen as insurmountable, such contradictions highlight what is important within the system and so what needs to be addressed if a more desirable outcome is to be attained. Engeström (2001) thus highlights the generative nature of the activity system, that it has the potential to promote new 'expansive' learning.

The above description of a single bounded, object-orientated activity system would constitute what Engeström and Sannino (2021) refer to as the second generation of CHAT. This has evolved from the first generation in which the unit of study was more restricted, focusing on the individual subject using mediating tools to work on the object. What was revolutionary in this early Vygotskian approach to learning was the move away from only including internal psychological processes to explain learning, to a focus on external cultural factors and their influence on internal processes (Daniels et al., 2007).

However, the idea of a single activity system as a unit of study, operating in isolation, has been questioned, prompting the development of third generation CHAT. Here there is an understanding that activity systems are frequently dependent on and co-evolve with other activity systems. The concept of contradictions within an activity system can then be extended to include contradictions between partially separate activity systems (Engeström & Sannino, 2021). This is particularly appropriate to WIL which can be understood as minimally consisting of the interacting systems of universities and workplaces (McRae, 2016). Third generation analysis lends itself to the development of boundary-crossing initiatives between participants from different systems. Boundary crossing then can evolve into the formation of temporary, specific problem-solving groups or ‘knots’ to address issues leading in turn to the co-configuration of new knowledge and practices (Engeström, 2008).

CHAT researchers frequently use activity system analysis and theory from a ‘birds eye’ view, in other words as an analytic technique to gain understanding of a complex activity, and to suggest researcher-generated improvements. This analytical approach can be compared to CHAT’s use as a formative and interventionist methodology, in which research participants seek to develop their own solutions to difficulties in working life. The predominant formative methodology is the so-called change laboratory (Virkkunen & Newnham, 2013). Here participants engage in identifying significant practical problems, then through unearthing their systemic and historical roots are able to formulate new concepts/processes to practically address these contradictions. These learning actions constitute an ‘expansive learning activity’ (Engeström et al., 2013). Through engaging in expansive learning, participants also develop their ability and agency to change their circumstances, what Sannino (2022) refers to as ‘transformative agency’.

Method for conducting the literature review

The review followed a similar approach to the PRISMA systematic review three-step methodology as outlined by Page et al. (2021) as shown in Table 3. In the first phase, researchers identify a database of articles using particular electronic search strategies. In this study Scopus and Web of Science were selected for their extensive coverage of journals; for example, SCOPUS covers 24 000 journals. A systematic search using Boolean search operators was then developed as is shown in Table 1 and Table 2; for example, “activity theory” AND “work-integrated learning” and various alternatives of these search items for both SCOPUS and WOS were utilized. Initially, 50 articles were identified for further examination.

Table 1: SCOPUS, search done 20251201

Search No.	Keywords	Limitations	Result
#1	{activity theory} OR {cultural historical activity}	Exact phrase, Article, title, keywords	6,293
#2	{work-integrated learning} OR {work-integrated Learning} OR {work-integrated education} OR {work integrated education} OR {cooperative education} OR {cooperative learning}	Exact phrase, Article, title, keywords	10,358 results
#3	#1 and #2 (combined in the search)		25
#4		Article, Language: English	22

From the structured search in SCOPUS there were 22 articles that met the set criteria.

Table 2: Web of Science, search done 20251201

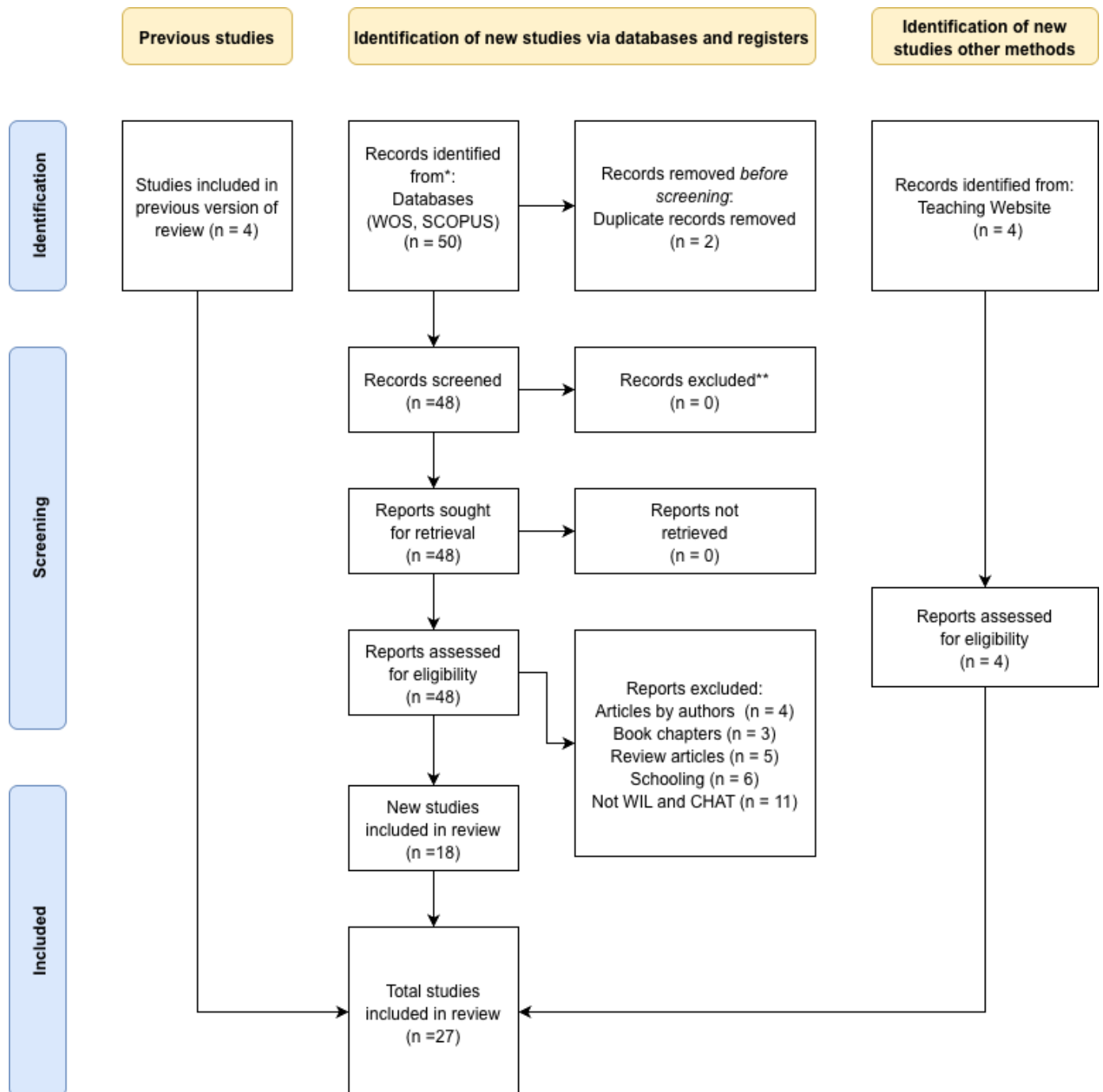
Search No.	Keywords	Limitations	Result
#1	“activity theory” OR “cultural historical activity”	Exact phrase, title, abstract, author keywords, keyword plus	5042
#2	“work-integrated learning” OR “work-integrated Learning” OR “work-integrated education” OR “work integrated education” OR “cooperative education” OR “cooperative learning”	Exact phrase, title, abstract, author keywords, keyword plus	9612
#3	#1 and #2 (combined in the search)		31
#4		Language: English, Articles, Review articles	28

From the structured search in WOS, 28 articles were identified and thus 50 articles in total were located in the first phase of the review.

As is shown in Table 3, showing a typical PRISMA flow diagram (Page et al., 2021), the next step was to remove duplicated articles occurring in both databases. Two articles were removed leaving 48 articles for further examination. The included articles were then screened for suitability and relevance to the topic under examination. In order to avoid any suggestion of bias, previous articles written by the authors of this article (four articles) were first removed. A further group of articles only dealt tangentially with WIL but were rather focused on issues such as collaborative learning, e-learning or staff learning rather than student development. Eleven additional articles were thus screened out. As the definition of WIL followed in this article was restricted to higher education, articles that dealt with the schooling level of education (six) were further removed. A number of articles, five in all, were review articles. As the focus of this investigation was on how researchers had used the theory in their WIL research, these review articles were also excluded. Finally, as the focus was on peer-reviewed journal articles, three book chapters were also removed from the list. Thus 29 of the original 50 articles were screened out leaving 19 articles for more detailed analysis.

Although this structured search formed the main basis of the review, there was a concern that too few articles had been located. Page et al. (2021) suggest that the main search can be augmented with articles drawn from previous searches or from websites that are known to carry relevant articles. Furthermore, Snyder (2019), suggests that researchers may not always be able source every article on a given topic but that the important issue is to obtain a sufficient spread of articles in order to identify major themes, even though this may be seen as ‘semi-systematic’. Thus, the original systematic list of 19 articles was finally augmented with articles that the authors had identified in previous research reviews (four in total). These articles had not been identified through the main SCOPUS/WOS search keywords but were still substantially about WIL/CHAT. Moreover, the website of the journal ‘Teaching and Teaching Education’ was known to publish CHAT/Activity theory research articles, but researchers may not refer to any of the typical WIL identifier terms. As shown on the PRISMA flowchart (Table 3), a total of eight additional articles were identified and included, giving a total of 27 articles for detailed review and analysis.

Table 3: PRISMA flow chart. This work is licensed under CC BY 4.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by/4.0/>



An important reminder here, before the results presentation, is that disciplinary field did not form a locus for investigation. This was because the purpose of the review was to assess how and why CHAT had been used in WIL research more generally. This delimitation is also clearly reflected in the structured search in the two databases SCOPUS and WoS.

Critical review of the use of CHAT in WIL research

In reviewing the use of a theory in practice Bligh and Flood (2017) suggest that readers would benefit from knowing: i) Why researchers have selected that particular theory for their research context; ii) Which particular principles or aspects of the

theory have been brought to bear on the research problem; iii) What particular insights have been gained from using the theory. These three dimensions of prospective rationale, how the theory has been used and retrospective reflection on insights offered through the theory's use have been applied to gather and organize data from the articles into three sections.

In a critical review of a theoretical approach the researcher wishes to code and interpret data gathered against some of the theory's main principles (Evans et al., 2012). Thus, it is possible to gain both a scoping view of why and how the theory has been used as well as where there seem to be gaps and future opportunities for its productive use.

The organization of texts falling under each of the above three dimensions (why, how and retrospective reflection) were further analyzed to capture the main emergent themes in the articles. For example, under 'how' CHAT has been used, most articles used the activity system as an analytical framework, which thus constituted a theme. Although many of the themes related directly to CHAT principles (e.g. activity systems or contradictions) more general themes also emerged (e.g. 'gaining insight'). In order to capture and focus on the main trends emerging, only those themes which were evident in three or more articles were represented in the results section.

Results of the literature review

The 27 papers selected for the review were categorized according to the dimensions inspired by Bligh and Flood (2017) namely:

Dimension 1 - Prospective rationale for using CHAT (or 'why')

Dimension 2 - How CHAT was used in the research

Dimension 3 - Retrospective insights gained from using CHAT

The results section is structured in the following way. First, the three dimensions reflecting how authors have referred to CHAT are presented, namely: Their prospective rationale for using CHAT (Table 4); the actual principles or uses of CHAT that informed the analysis or 'how' CHAT was used (Table 5); and finally their retrospective thoughts on why CHAT was a particularly useful theoretical tool for analysis (Table 6). Thereafter the data was categorized into themes which were inductively developed based on a close reading of each article. Evidence from a selection of the articles in the form of exemplar quotes is presented to justify the choice of the themes. The relative frequency of occurrence of each of the themes in the articles is also indicated in the frequency (freq') column. For example, of the 27 articles 17 indicated that their prospective rationale was guided by a need to show a 'complex, systemic, contextual and/or the multi-perspectival nature of WIL' (theme 1 under dimension 1). Because some articles had evidence of more than one theme, the frequencies do not add up to a total of 27.

Prospective rationale for using CHAT

Six themes indicating prospective rationale for using CHAT emerged from the analysis. They are presented in Table 4.

Table 4: Dimension 1 - Prospective rationale for using CHAT

Theme	Freq	Exemplar quotes
Shows complex, systemic, contextual multi-perspectival nature of WIL	17	In order to do justice to this complexity we used activity theory (de Feijter et al., 2011, 348) The complexity of interactions among industry, academics, and students lends itself to adopting an activity-theoretical approach (Engeström, 2001) to analyze strategies and technologies for coordinating and delivering WIL programs. (O'Rourke et al., 2025) To better integrate context and student teacher's perceptions, then it needs a systematic coherent theoretical framework (Chye et al., 2019, 25) CHAT belongs to a group of theories labelled as "sociomaterial", which bring to the foreground the social and material world in which the individual is entangled' (Ajjawi et al., 2015, 300).
Identifies constraints and ways forward	8	Finding contradictions or 'sticking points' in an activity system points to ways of improving practices. (Winberg et al., 2022). CHAT affords the identification of contradictions (Chye et al., 2019, 26). An activity system, as a thinking device or gaze can, furthermore, assist in identifying contestations and tensions in the system (Henning et al., 2015, 3).
Situates learning as mediated	6	What is learned will be mediated by all the factors in the system (Coldham 2011, 264). Activity theory provides essential explanations linking learning activities to the use of tools... (Wiredu & Sorensen, 2006, 309).
Provides understanding, insight or explanation	5	The concept of expansive learning accounts for knowledge co-production (Ajjawi et al., 2015, 300) Similar to Kolb's experiential learning model, activity theory is based on constructivism but adds the dimensions of time, context and transformational processes ... (McRae 2016, 137).
Interacting systems, boundary	4	Working with and understanding WBL in academic-industry collaboration should acknowledge that (they) ... are separate activity systems ... CHAT has contributed to the understanding that boundaries carry learning potential (Algers et al., 2016, 3-4). 3 rd generation CHAT enables two or more interacting activity systems to be modelled to understand dialogues, multiple perspectives ... (Ajjawi et al., 2015, 300).
Strengthens theoretical foundations of WIL	3	Eames and Cates (2011) urged us to consider multiple perspectives and that doing so might lead to the strengthening of the theoretical foundations for co-op ... (Khampirat & McRae, 2016, 351).

All 27 articles reviewed indicated some form of rationale for their use of Cultural-Historical Activity Theory (CHAT). The most prominent rationale was CHAT's usefulness in capturing the cultural and contextual complexity of practice through depicting it as an activity system (de Feijter et al., 2011; Brown & Diale, 2017; Ajjawi et al., 2015). The CHAT depiction also represents the multiple perspectives put forward by practitioners who have to work interactively and dynamically with the more material elements of the system, which is in turn riven with difficulties (Chye et al., 2019).

CHAT directs attention to both enablements and constraints to the successful implementation of WIL practices, through understanding the dynamic interactions between the system elements. The focus on contradictions in practice, as the underlying mechanisms for observed constraints, is not necessarily an impediment to success but contradictions should rather be understood as hopeful, future advancements which have the potential to further develop and improve the system (Henning et al., 2015).

WIL-CHAT researchers emphasize that one advantage of using CHAT is that the activity system depicts the mediating roles of other significant components of the system such as regulations, tools and the different roles performed by members of the activity community (Thompson & Schademan, 2019; Coldham, 2011). This concept of systemic mediation is not always acknowledged by other learning theories (Wiredu & Sorensen, 2006).

Of equal importance for researchers is that CHAT does not just 'depict' the complexity of practice, but also provides for an explanatory framework of observed events. Through so doing it can help researchers to gain greater insight and understanding of WIL practices and strengthen the theoretical foundations of WIL. The pre-eminence of other theories in WIL research, such as Kolb's experiential learning model (McRae, 2016), is also challenged.

Through highlighting the different activity systems involved in WIL, the interactions between the partially separate systems of industrial organizations and universities can be made more apparent (Algers et al., 2016; McRae, 2016). This enables researchers to identify the different practices and purposes of work and university, and the opening up of a potentially productive boundary zone or third space between them.

How CHAT was used in the research

Five themes emerged from the analysis of authors' use of CHAT in their research, as presented in Table 5.

Table 5: Dimension 2 - How CHAT was used in the research

Theme	Freq	Exemplar quotes from the articles
Analytical framework	16	The data were analysed according to activity theory components as outlined in second generation activity theory (Scholtz & Bester, 2018, 187). The second level of coding, leading to further levels of abstraction, focused on the six elements of activity theory .. (Lin et al., 2021, 3). The interview findings were analysed thematically with reference to activity theory (Reid, 2015, 174).
Contradiction analysis as an explanatory framework	14	Findings across the case studies were synthesized focusing on the contradictions within the activity systems. These 'sticking points' (Engeström, 1999, 28) are understood by activity theorists as key areas for learning and change (Winberg et al., 2022, 475). The complexities and tensions identified in this study may go some way to explaining ... where more patient questions went unanswered in consultations in which students were present. (Ajjawi et al., 2015, 309). In this paper, they (contradictions) are defined by new WIL processes that create tensions by impacting the individual academic workloads, or established communication protocols, with students and industry. (O'Rourke et al., 2025, 119).
Interacting systems	9	3 rd generation activity theory ... is drawn upon in this study to illuminate the complexity of learning in the boundary zone (Nguyen, 2020, 3). A second generation activity system (Fig. 1) (Engeström et al. 1999) did not yield a satisfactory explanation of the relations between the different themes, because it could not accommodate the presence of two simultaneous, mutually influencing activities. We therefore used a third generation activity system (de Feijter et al., 2011, 351).
Boundary, co/knotworking & shared object as an explanatory framework	7	In each case the tools of applying relevant learning and assessment devices acted as boundary spanners (Engeström, 2009). In some of the cases knotworking (occurred) between the student and the supervisor as they co-created programs (McRae, 2016, 140).
Formative, interventionist research	3	The desired outcome of the DWR* meetings is expansive learning (of the participants) (Douglas, 2012, 6). (the aim was) ...to disrupt conventional thinking ... to expand thinking ... (Coldham, 2011, 262).

DWR* was an earlier form of the change laboratory emanating from the Finnish U. Helsinki Centre for Activity Research in the 1980's. In keeping with the prospective rationale, the most common usage of CHAT was as an analytic framework to systematize the data gathered. Researchers utilized the components of the activity system to organize rough data into a more comprehensible form, often in order to highlight relationships between the components.

Although a few articles simply used CHAT to analyse data and went no further, most used the initial analysis to highlight the main tensions within the activity system. These were identified as occurring between the elements of the system or where 3rd generation activity theory was used, between the two activity systems themselves. These tensions could then be used to explain the observed events. However, many of the articles referred to tensions and contradictions as being alternative expressions of the same phenomenon, not clearly distinguishing between tensions as manifestations of more deeply rooted and historically developed contradictions.

A third of the authors (9/27) identified WIL as consisting of two or more interacting systems, for example the system of the university and that of the workplace. Though both 2nd and 3rd generation CHAT provided adequate analytic frames, the latter also provided a means to compare and identify tension points and areas of collaboration between the two systems.

In keeping with the use of interacting systems characteristic of 3rd generation CHAT, seven articles developed an analysis to include the concepts of boundary and boundary crossing and the related concepts of co/knotworking around a shared object. These concepts were used in different ways, for example to highlight disjuncture between systems (Nguyen, 2020; Wiredu & Sorensen, 2011) or to explain how actors' boundary-crossing activities could explain improved student learning (Thompson & Schademan, 2019).

In three articles researchers involved participants in some form of problem-addressing activity typically involving the use of the activity system as a reflective tool by participants. This form of formative and interventionist research can be seen as distinct from more analytical uses of CHAT described previously. In these articles, furthermore, the research was designed from the start around a CHAT perspective, rather than CHAT being used often retrospectively as an analytic

framework. Only one of the articles (Blomsø et al., 2023) utilized the full reflective cycle of expansive learning involving multiple, consecutive workshops. The focus here was on the development of student agency or ‘voice’ to challenge impediments to their learning. In Douglas’ (2012) article university and school staff worked on improving pre-service teachers learning through addressing the object and motive of the activity system, raising areas where change was necessary. In Coldham’s (2001) article, WIL curriculum developers were facilitated in finding their own solutions to problems in order to promote staff learning and change.

Retrospective insights gained from using CHAT

After having conducted the research some of the researchers reflected on how CHAT had enhanced their understanding of WIL and, in some cases, provided impetus for further research. Only 12/27 of the articles provided this form of retrospective valorisation of the CHAT research conducted. The following three themes in Table 6 were identified from the 27 articles. Five themes emerged from the analysis of authors’ use of CHAT in their research, as presented in Table 5.

Table 6: Dimension 3 – Retrospective insights gained from using CHAT

Theme	Freq	Exemplar quotes from the articles
Enhanced insights gained about WIL	8	Based on our AT analysis, we distinguished two different activities that can provide insight into how the complex system of workplace learning can affect patient safety (de Feijter et al., 2011, 255). By identifying these contradictions, the field of vision for the researchers is enlarged ... (Chye et al., 2019, 33). Drawing on AT has been valuable in highlighting workplace learning as a political process ... underlined by the challenges presented by divisions of labour ... (Reid, 2015,183).
Provided a platform for future research	6	Further studies could build on this (CHAT research) for knowledge of this complex issue is a crucial factor in improving patient safety (de Feijter et al., 2011, 357). We offer this experience to encourage others to use AT to analyse complex problems and implement simple and effective solutions ... (Gillespie et al., 2021, 56). In particular, future research may focus on the opportunities for patients to meaningfully cross into the activity system of student learning (Ajjawi et al., 2015, 311). Whereas, if a more networked view and multi-concept analysis of the four institutions was undertaken (Engeström, 2001), then, new theorization opportunities would become available (Colasante, 2024). This shared vision can then support ... (O’Rourke et al., 2025, 129).
Rejection of previous understandings of WIL	5	These findings imply a need to reconceptualize teacher learning in relation to tensions and contradictions (Dang, 2017, 327). These findings negate the use of simple guidelines ... as adequate for clinical teacher training ... and that preparedness is an empty concept (Ajjawi et al., 2015, 311). A CHAT analysis of the use of e-portfolios rejects the view that they can be studied in isolation ... it must be studied within the learning environment ... (Chye et al., 2019, 33).

Just under half of the authors reflected back on their use of CHAT. Authors highlighted how CHAT had provided new ways of seeing WIL. CHAT enabled researchers to challenge and in some cases reformulate previous assumptions about WIL, such as studying e-portfolios in isolation (Chye et al., 2019) or that ‘tensions’ were unproductive and hampered student learning (Dang, 2017). Furthermore, authors suggest that other WIL researchers could harness the tools and methods used in CHAT for future research, for example, as a methodology to compare tensions in WIL across different institutions (O’Rourke et al., 2025)

Discussion

As outlined earlier, there is a need for theoretical approaches to WIL research that can capture its complexity as well as adopt a more critical stance on its enactment. CHAT provides WIL researchers with the activity system unit of analysis which

depicts the collaborative and complex dynamics involved in people's actions (Engeström, 1999; Engeström, 2001; Ploettner & Tresserras, 2016) which are typically found in WIL activities. The system enables actions to be understood within the broader societally significant and object-orientated activity people are involved with. Likewise, WIL researchers justify their use of CHAT as the theory deals with the intricacies of connected, interactive, contextually-rooted systems, in which multiple perspectives are represented (e.g. de Feijter et al., 2011; Sorensen, 2014; Ajjawi et al., 2015). This is particularly relevant for the complex nature of WIL. These findings are commensurate with those of Bligh and Flood (2017). In their review of CHAT in higher education the theory is used predominately for diagnosis of complexity and as a method to frame data analysis.

Unsurprisingly, much of the authors' rationale for using CHAT is commensurate with what authors such as Zegwaard et al. (2023) posit as key elements of WIL initiatives; for example, that WIL should be integrative, reflect authentic situations and involve multiple (and often conflicting) stakeholders. However, such a suggestion does not yet have a theoretically explicit grounding, hence it is treated more as a recommendation rather than providing a critical stance to the phenomena. It is argued that CHAT has the theoretical strength to do so, as this review can show. Furthermore, researchers select CHAT as their chosen methodology as it enhances their insights into the complex system of WIL and provides an explanatory framework that has the potential to strengthen WIL's theoretical foundations (e.g. Larsen et al., 2017; Nguyen, 2020). CHAT also shows potential to negate firmly held beliefs about WIL, for example that 'tensions' are counterproductive (Dang, 2017). Researchers also select CHAT as it highlights key restraints to successful work through identifying systemic contradictions (Chye et al., 2019; Winberg et al., 2022; de Feijter et al., 2011) and provides a framework for depicting future positive developments (Coldham 2011; Helgevold et al., 2015). Identifying contradictions was also highlighted by Bligh and Flood (2017) as one of the main ways that authors utilized CHAT principles in higher education.

As WIL involves at the minimum university and workplace stakeholders, many of the authors highlight 3rd generation analysis as particularly appropriate for WIL research, to accentuate what is common and what is different between the stakeholders (e.g. de Feijter et al., 2011; McRae, 2016). What is important in 3rd generation analysis is that the systems are both bounded from one another but also in part inter-dependent. There is a need for stakeholders to negotiate some form of common ground if progress is to be made (Engeström & Sannino, 2021). Authors such as Algers et al. (2016) highlight how students can negotiate their WBL projects which meet both workplace and university needs, so acting as boundary crossers; or how practice trainers, through having a foot in both work and university, can assist in bringing the objects of both systems closer together (Reid, 2015). Given these affordances for WIL research, it is perhaps surprising that the use of 3rd generation is not more widely used. Furthermore, in this line of argumentation, there is a need to more critically investigate the burden placed on students as an object that connects different activity systems, such as the university and the external organisation involved in a placement or project (Piper et al., 2023).

This position requires further investigation from a more systemic point of view, rather than a focus on the individual experience, to identify the tensions surrounding the individual student. Such an approach can further elaborate on the role of WIL as a connection between the university and external organisations for the purpose of student learning in higher education. CHAT as a critical theory has the capacity to support such studies as this review suggests.

However, one critique of much of the analytical use of CHAT is the authors' limited depiction of the concept of contradiction. The term is frequently conflated with difficulties experienced by practitioners in their day-to-day work. Dang (2017, 327) interchanges the terms 'contradictions', 'tensions' and 'dilemmas' in their concluding comments, even though these have different meanings; Chye et al. (2019, 29) appear to conflate contradictions with tensions when they claim in their analysis that 'contradictions pertained to tensions between different tools'. The identification of tensions within an activity system can pinpoint which 'pressure points' need to be addressed and is thus useful in its own right to assist researchers in charting new directions for the activity. However, according to Engeström and Sannino (2011) there is a difference between the actual, empirical difficulties or tensions experienced by actors and the CHAT concept of contradiction. What is experienced by practitioners or observed by researchers is a manifestation of more deeply seated and historically developed contradictions within the activity system. Such historically evolved contradictions are thus not directly observable (Spante & Egelström, 2024). Resolving the contradiction involves the development of a new mediating concept or process that can begin to articulate the opposite tendencies with one another (Engeström & Sannino, 2011), involving a more lengthy analytic process rather than simply forwarding a solution (Sannino, 2023). This more nuanced understanding of how to address contradictions which underlie observed/experienced tensions thus has the potential to assist WIL-CHAT researchers with addressing such difficulties.

As Dinh and Sannino (2024) and Ploettner and Tresserras (2016) point out, CHAT is essentially an activist and change-making theory of learning and development. This is where more formative CHAT approaches come to the fore, for example as is practiced in change laboratory interventions. However, only three articles extend analysis into interventionist

change research, in which practitioners or students themselves grapple with impediments to their work and seek and trial practical resolutions (Douglas, 2012; Blomso et al., 2023; Coldham, 2011). Change laboratory research is much more long-term and complex to implement than analytic research of a pre-existing situation (Bligh & Flood, 2015), possibly, as these authors suggest, offering an explanation for its limited use in higher education research more generally. Nevertheless, WIL research would benefit from a better balance between analytical and formative interventionist research, in which WIL practitioners may become 'shapers' of their own world rather than simply being the subjects for analysis from external researchers (Ploettner & Tresserras, 2016).

In Piper et al.'s. (2023) depiction of a 'critical WIL', the authors firstly suggest that it should be more than just workplace preparation. Furthermore, they suggest that students should gain an understanding of the system they are in, identify potential systems of domination and actively seek to resolve to counter these, and in so doing develop a capacity to act as change agents. All the articles reviewed involved the researchers and students understanding their WIL activity systems in some manner. However, understanding systems of domination or unfair practices was not well documented in the literature. Furthermore, it is only in one of the three interventionist uses of CHAT (Blomso et al., 2023) that students attempted to address systems of domination, develop a capacity to address these challenges and in so doing act as change agents. This capacity to act as change agents is furthermore in keeping with Barnett's (2004) argument for a higher education that can develop students who can confront and work with problematic and changing societal conditions. CHAT research in the form of interventionist change research thus offers an avenue for the further exploration of enacting a more critical WIL. This critical sense is well captured in Blomso et al.'s. (2023: 9) suggestion that WIL students' engagement in a change laboratory can assist them in moving from 'voiceless participants to more equal and active agents in the (WIL) project'

Conclusion

The rationale for this critical review article was not only to identify and present how CHAT has been used in WIL research, but also to highlight how it may enhance such research. This review suggests why CHAT is a promising theoretical framework when addressing tensions and conflicts in a WIL program, course and approach for student learning in higher education. In terms of enhancement, CHAT offers researchers a holistic and situated understanding of WIL through positing it as an activity system and highlighting the often complex and contradictory relations between the system's elements. However, as Ploettner and Tresserras (2016, 94) suggest, CHAT research should not 'just stop at the triangle'. Future WIL-CHAT research could benefit from delving more deeply into the historical origins of difficulties uncovered in order that these can be comprehensively understood and addressed. Furthermore, future CHAT research could involve WIL practitioners and students more in formative interventions which may motivate and capacitate them to challenge impediments to best practice in support of a more critical WIL as suggested by Piper et al., (2023).

Lastly, in terms of limitations to the research presented here, only peer reviewed articles were included in the review. Future WIL-CHAT researchers may wish to expand the scope to include book chapters in reputable publications and peer reviewed conference proceedings from specialist WIL conferences.

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Declaration of interests

No competing interests to declare

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