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Developing and Facilitating a Workplace Communication Workshop for Engineering Student Interns: Implications for Practice

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ABSTRACT

In this paper, Engeström's third-generation activity theory (AT; 2001) is adopted as an analytic tool to analyze a workplace communication workshop for engineering students and an experienced educator's cognition and practices. Curricular elements of the workshop and the educator's pedagogical approach are analyzed together with the motivation for a specific learning experience design and the rationale for adopting such practices. AT served as an invaluable analytic lens for our reflection on the workshop's design, its activities, and the educator's cognition and practices. This reflection provides a worked sample for AT-based reflective practice and strategies for developing workplace communication workshops. It is concluded that by using AT as an analytic tool for reflection, educators can effectively reflect upon and analyze their course design and teaching practices, thereby externalizing their knowledge, skills, and attitudes. Educators can develop their expertise through such a reflective process and create more engaging and effective courses. We also recommend that AT be adopted as an analytic tool in reflective practice modules in communication teacher education and training programs to enable prospective and novice teachers to engage in reflective practice and purposefully develop their teaching expertise throughout their careers.

Keywords: Activity Theory; Reflective Practice; Professional Communication Education; Workplace Communication Challenges; Workplace Communication Skills; Integrated Work Study Program

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1. INTRODUCTION

Activity theory (AT; Engeström, 2001; Engeström & Sannino, 2021) as an analytic tool helps researchers to analyze and understand the complexity of human activity systems; it has been utilized as an analytic tool for reflection in diverse fields, including education, psychology, and human-computer interaction (e.g., Güngör & Güngör, 2019; Stuart, 2012, 2014). Educational research has discussed methodical issues in applying AT in higher education research (Colasante, 2024).. AT has been used as a lens for systematic reviews of educational research (e.g., Yang & Kyun, 2022; Zhang et al., 2023). It has also been adopted to explicate teachers' practices and learning experience design (e.g., Enferad, et al., 2022; Schmidt & Tawfik, 2017; Spinuzzi, 1996. Our reflection continues the latter line of research by applying AT as an analytic tool to explicate a workplace communication workshop for engineering student interns and an experienced educator's cognition and practices in the creation and facilitation of the workshop. By doing so, we intend to provide educators with insights into applying AT to design, develop, and facilitate courses and reflect on their own cognition and practices to continue enhancing their professional expertise and develop more engaging and effective learning experiences for students (see also Rahimi, 2023).

Engeström's third-generation activity theory (2001) is adopted as an analytic tool for this reflection for two main reasons. Firstly, AT offers a comprehensive and rich understanding of collaborative human activities facilitated by tools within complex dynamic settings (Crawford & Hassan, 2006). Secondly, a more complete understanding of a "collective activity" can be achieved through a "retrospective analysis of the subject's own practice" (Blin, 2004, p. 383).

In what follows, we discuss the developments in activity theory, followed by the description of the workplace communication workshop. Then, we apply Engeström's third-generation activity theory (2001) to analyze the workplace communication workshop for university student interns and explicate the educator's cognition and practices in the creation and facilitation of the workshop. We conclude this reflection with its implications and suggestions for further research.

2. LITERATURE REVIEW

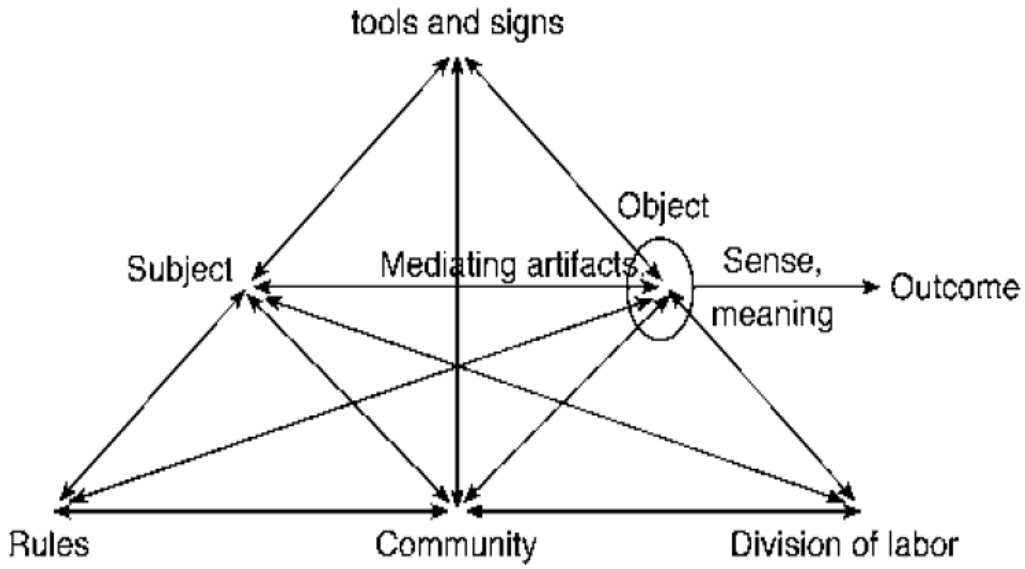
2.1 Developments in Activity theory

In its most basic form, *activity theory* is a theoretical framework for describing an activity through the analysis of the subject(s) involved, their objective(s), and their means of conducting the activity. The foundational elements as conceived by Vygotsky were the *subject*, the *object* and the *tools* (as cited in McAvinia, 2016). It was through this triad of the subject, object, and a mediating artifact that Vygotsky argued for the idea of cultural mediation of actions (Engeström, 2001). In activity theory, the subject acts as the agent or

the do-er of the activity. McAvinia (2016) explains the object and its role within the 'activity system' by suggesting that in every such system there exists a motivating objective that will "instigate and steer" the activity (p. 66). She also states that once the aim of the activity is reached, the *object* can be viewed as having been transformed into an *outcome*. The third foundational node of AT is the use of *mediating artifacts,* also called tools, or instruments. Nardi (1996, as cited in McAvinia, 2016) suggests that activities are mediated by specific types of tools as well as by individuals' interactions with others.

Leontiev (as cited in McAvinia, 2016) extended original activity theory by adding a set of *rules* and *signs* and the *division of labor* dimensions "to take account of the socially mediated nature of activity, and the roles of other individuals in the activity" (p. 62). In modeling activity systems, it is vital to "examine and document both tacit and explicit rules" (McAvinia, 2016, p. 69). The division of labor in AT can be viewed as the "distribution of actions and operations" within an interacting group of workers or other participants (Hashim & Jones, 2007, p. 2). When the division of labor and rules merge, an added "plane of reality," the *community,* is formulated as a mediating factor. It is within this enlarged group that "activities and teams of workers are anchored, and can be analysed" (Hashim & Jones, 2007, p. 2). The initial version of AT did not inter-link the various "nodes" in an activity system (McAvinia, 2016). Engeström (2001) asserted that a revised version of activity theory was needed to show the bidirectional connections between all the nodes which was demonstrated by the bidirectional arrows in the extended version, as clearly shown in Figure 1.

Figure 1. Engeström's Extended Activity System (1987)



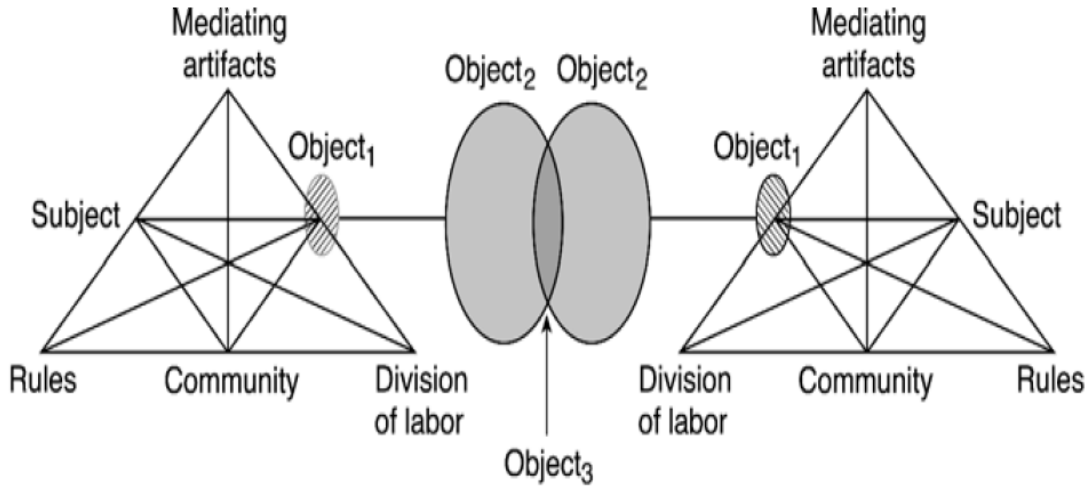
Note: **Reproduced from Engeström 2001**

2.2 The third generation of AT and interacting activity systems

In Engeström's work on the third generation of AT, the various nodes of an activity are interconnected through an extensive process (1987, see Figure 1 above), one that can be seen to lend itself to addressing both formal and informal learning. In this manner, AT is a means of "dealing with practice" (p. 23) whether in an academic or workplace setting. McAvinia has summarized Engeström's view (2016, p. 64) as activities that are "always goal-directed, multi-voiced, historical and changing over time, and subject to the possibility of expansive transformation."

Imbued with these attributes, third generation AT effectively models the relationship between activity systems, including shared and unshared objects. As shown clearly in Figure 2, boundary crossing creates shared objects and objectives (Engeström, 2001; Marocco & Talamo, 2023; Papageorgiou, 2023). For the third generation AT, the notion that an educational community could be considered to have a mediating influence on the nature of activities became apparent. To illustrate this, Schmidt and Tawfik (2017, p.4) explain that by using AT within learning experience design, there can be the promotion of "a more holistic and comprehensive view of learning as goal-oriented meaning-making activity" due to consideration being given to mediating factors such as "technological tools," and the expanded "context of the learning community, its rules, and its division of labor" (p.4). This generation has also been used in organizational development context. For instance, Marocco and Talamo (2023) applied the third-generation AT framework to model multi-actor decision-making in organizational development.

Figure 2. Interacting Activity Systems as a Model for the Third Generation of Activity Theory



Note: **Reproduced from Engeström 2001**

Internalization and externalization are additional noteworthy elements in the third-generation model. For Vygotsky (as cited in McAvinia, 2016, p. 65), a subject comes to understand the world through participating in activities and internalizing the values, beliefs, norms, behaviors and rules of a community. Through the analyses of the activity systems, mediating artifacts, and interactions with others, one may externalize knowledge, skills, attitudes, and behaviors to create new systems and artifacts. Externalization is particularly relevant in our reflection as the entire process of explication becomes an externalization of the cognition and lessons learned through the actual experience of the workshop design and facilitation. For instance, Rahimi (2023) explicated an authentic technical proposal assignment to externalized competencies required for developing such assignments. Our readings, discussions, and writing of this paper are all means of externalizing knowledge, skills, and attitudes and co-creating further understanding that can influence the subject (i.e., the content developer/facilitator) in workshop activities within other educational contexts in terms of future content development, workshop design, cognition, and pedagogical practices.

2.3 The Workplace Communication Workshop

Central to this reflection is the workshop design journey and facilitation of a two-session professional communication workshop for third-year engineering students at a government-supported university in Singapore. The students return to campus from their required Integrated Work Study Program (IWSP) to participate in the workshop, first for a three-hour session after two months on the job, and again for another three-hour session five weeks later. In its most recent iteration, the eight-months IWSP starts in the third trimester of the students' second year and extends through the first trimester of their third year. Students are awarded 20 university credits for the IWSP program. The programmatic aim is that students should be able to apply their theoretical learning within a well-defined workplace context. Six dates during that internship are reserved for the student interns to return to the campus where they are asked to meet with their academic supervisor, complete a series of workshops on both technical, and soft skills and re-bond with their course mates.

Initially, the ungraded nature of the workplace communication workshop made it difficult to facilitate. Each intern in the IWSP receives continual assessment from a work supervisor and an academic supervisor for their effort and achievement, but none of the overall IWSP module evaluation is placed on the communication workshop. Added to this is the way that instruction in communication has been positioned in the overall university curriculum and in the student interns' previous learning experience. Study in all academic programs at the university within the engineering cluster is focused almost exclusively on technical content modules during the first two years. Students dedicate their time to topics such as engineering math and physics, programing fundamentals, systems and software engineering, and the like, and do not have an opportunity to take elective subjects. Within the first year of study, there

is only a single module on communication that concentrates on foundational knowledge and skills in writing and presenting. Assignments in that module include writing a summary of a discipline specific article on a particular engineering technology or system and then adding an analytical reader response. Skills covered for that include paraphrasing, summarizing, synthesizing, and citing source materials as well as crafting thesis statements and providing written support evidence for a thesis-driven argument. Other assignments include a set of written learning reflections, a team-based research project with a problem-solution-based design report required as well as an associated oral presentation. What has been noticeably missing within the scope of that introductory module's curriculum is any explicit training in interpersonal and intercultural communication.

The workplace communication workshop was initially intended to create an opportunity for the would-be participants to refine the communication skills needed in the IWSP workplace. The goal was broad in scope and challenging, especially considering the diverse professional needs of students who would be fully engaged in a range of activities connected to their engineering attachments. Positioned in nearly two dozen multinational and local companies, the interns had job titles that range from software engineer intern, data specialist and quality assurance specialist to sales and social media associate. In other discussions with different stakeholders prior to the design and first delivery of the workshop, it was noted that within their IWSP, students would need a range of competencies and traits, including employability capital (i.e., identity, social, cultural, human, and psychological; Tomlinson, 2017) and others soft skills (Touloumakos, 2020). In the expansive area of soft skills, *reflection* was identified as being relevant since the students would be required to write a bi-weekly 'log' for their IWSP academic supervisor; they would need *presentation skills* because of the requirement for each of them to present their ideas in the workplace and back at the university where they would have to give a post-IWSP formal presentation.

In addition, it was suggested that *interpersonal communication,* an area increasingly recognized as vital for being hired, promoted, and retained at all levels (Efrat, 2022), would be of great value, especially since it had not been addressed in the university's Year 1 communication module. Finally, there was also a discussion of other soft skills being applicable - *meeting skills*, *teamwork,* and *conflict resolution* among them - as these had surfaced by academic program faculty as being necessary during the internship. These skills had also been flagged as important by the Singapore government (My Careers Future, n.d.).

Through the lens of AT, articulating the objects and learning outcomes, *key workplace communication skills*, were of paramount importance so that the workshop, *the mediating artifact and community*, was not just a 'shot in the dark.' It was equally important to design the workshop such that various learning outcomes, *key workplace communication skills*, were achievable for the *subjects, third-year engineering student interns,* within the given mediating factor, *rule*, of a six-hour time constraint. With these understandings in mind, a learning experience that would have students focus on soft skills development within their IWSP context was developed by utilizing the problem-based learning approach, *another*

mediating factor, that has been successfully implemented in engineering education and other fields (see e.g., Hunt, Lockwood-Cooke, & Kelley, 2010; Yew & Goh, 2016).

3. ANALYSIS

Through the AT lens, the *subjects* for this reflection included *third-year engineering student interns*. For these students, though attendance for the two three-hour sessions is required *(rule)*; the workshop is ungraded (*another rule)*. The students were working in nine different companies, *different communities of practice*. The *objects/objectives*, or the guiding goal of the workshop, were contextualized within the IWSP module itself. The workshop's specific communication outcomes were designed to be specific: By the end of these two workshop sessions, each student should be able to achieve the following *objectives*:

- reflect critically on the challenges they face as a communicator in both contextual and complex situations;
- describe how *self-awareness*, *perception* and *willingness to adapt* influence communication decisions;
- explain how the *environment* and *personal identities* shape communication style;
- write an effective meeting agenda, take accurate notes at a meeting, and write the meeting notes as a concise and complete set of minutes;
- develop guidelines for managing workplace communication and relationships; and
- refine further their presentation skills.

To facilitate achieving the key objectives, the students were assigned to a small team, *community*, of three or four members and were required to complete a set of required workshop tasks, *mediating artifacts*, including a list of guidelines for managing workplace relationship. This approach is well-aligned with McAvinia's (2016, p. 67) proposition that "Objects are 'transformed' into outcomes by activities".

The student-generated guidelines for managing workplace relationships are one of the central *objects* in the workshop learning process. The guidelines would also qualify as *mediating artifacts* within the workshop activity, becoming in practice a means of discussing *rules and norms* as they exist within a particular workplace community and whether those might apply across the industry. The various discussions during the workshop, first within the team level, and then amongst the workshop group in general, evolve in such a way as to produce their own outcomes. The entire process supports Engeström's (1987) assertion that there are interactions and constant mobility among the activity's nodes; an original object may rapidly turn into an outcome, then into a tool, and maybe eventually into a rule.

One clear example of an impactful *mediating factor* in the workshop is the formal team meeting *(community of practice)* held after Workplace Session I. In it, the team lead coordinates a discussion of each team member's workplace challenges and then leads his team members to identify potential means of resolution *(division of labor)* and in preparing

the guidelines (*rules through the lens of AT)* for managing effective workplace relationships to be shared during the final-day oral presentation. Teams are also instructed to create an agenda for the meeting and to record and produce a set of minutes, signed off on by each team member, so that the meeting can be reviewed later by the workshop facilitator. Formalizing the meeting in this way serves multiple purposes. First, the activity supports one of the explicit learning outcomes for the workshop while also encouraging each team to put a serious, purposeful effort into settling the workshop's central problem focus: answering the question of which significant behaviors are recommended for effective communication and relationship management in the IWSP workplace. In this way, the meeting becomes a platform (*mediating tool*) for establishing shared significant learning, allowing the student team members, *community*, to externalize their own developing attitudes, values, and beliefs. It also creates a means for the facilitator to become involved and take note of each team's discussion and preparation prior to the second workshop session.

Significant interpersonal challenges may include overly demanding work supervisors, inattentive academic supervisors, being looked down on as an intern, uncomfortable office politics, and a stressful work environment. Students share their challenges during a scheduled task in the workshop's first session using a primary workshop *tool* (*also a mediating artifact*), *Communication Challenge Scenario* worksheet (CCSW; Table 1). By addressing the nine dimensions of a real or potential workplace communication challenge delineated in the worksheet, each student would be guided through a reflection on their own work situation and relationship management. The expectation in terms of learning experience design was that this task would serve as a means for the intern to construct a mental picture of the office experience and a way of sharing or externalizing it *in detail* with others. While the task provided scaffolding for each student's reflection process, it also became a conduit for discussions of real-world challenges and resolutions and a catalyst for change and associated learning.

Table 1. Communication Challenge Scenario Worksheet

1. Communication context (e.g., in a work team, an office setting in meetings, between work divisions, in a one-to- one relationship)	
2. Communication expectation/goal Explain this in terms of a behaviour. What skill or behaviour is expected? Examples could be 1) you are not certain what your work colleague wants you to do in a certain situation, or 2) your supervisor expects you to understand his standards in terms of work produced even when that has not been explained.	
3. Communication breakdown: The challenging situation	

(e.g., details of the difficulty, problem, or conflict you or someone you know is having)	
4. The people involved and their behaviours Who is involved? What are their related actions or behaviours?	
5. Key communication skills targeted Which communication skills are involved? speaking/presenting, writing issues. interpersonal skills, intercultural matters	
6. Your feelings (e.g., anger, surprise, dread, fear, helplessness. disgust, sadness)	
7. Root cause What is the main cause of the challenge? List your ideas on why the problem has not been solved or why a potential problem might arise.	
***8. Possible means of resolution** What action might or did settle the matter?	
***9. Thomas-Kilmann Conflict** Management Model (TKM)/JOHARI Window By Workshop #2, explain how the challenge listed could be addressed using any one of the five conflict resolution strategies of the TKM or adjusting interpersonal interactions in a way that would be reflected in the panes of the JOHARI Window, or using any strategies	

Note: ***To be completed prior to Session 2**

Within the task, each participant indicates the social context for their own identified communication challenge in the CCSW. The 2nd, 3rd, 4th and 5th items require further elaboration on the nature of the expectations in terms of skills and/or behaviors, the challenge in achieving the expected skill level or behavior and the people involved. Item 6 focuses on the intern's feelings and 7 on the perceived cause. The last two items collect information on students' real or hypothetical conflict resolution strategies that students would share during the second session.

For a student with a communication challenge with a workmate, the student would naturally explain the immediate work context, the relationship with the workmate, the communication challenge/breakdown, and the emotional impact due to the situation. Next, reflecting on the cause would allow the student to give more consideration to the source of the communication challenge/ problem/conflict. Eventually, the student would need to employ either some element of the Johari Window (Verklan, 2007) or the Thomas-Kilmann Conflict Resolution Model (Mishra, 2021) – each being the explicit strategies shared in the workshop (i.e., other mediating artifacts within the activity theory) -- upon their return to the workplace. Later during the second workshop, they would share whether they were able to resolve the designated challenge using either of these or any other strategies. Discussions of team

members' individual worksheets would then provide a basis for each team preparing its specific set of guidelines for managing workplace relationships. During each team-based presentation in the 2nd workshop session, each student would share some aspect of the newly developed guidelines with justification borne out by team members' workplace experiences.

The lecturer's *boundary-crossing* brought his *activity system* into contact with the student and other stakeholders' *systems*, leading to his perception of students' professional workplace communication needs. His newly-formed perception of the students' needs guided his decisions regarding the specific learning outcomes for the workshop. Then, drawing on his own knowledge, skills, and attitudes, he designed the learning activities, *mediating artifacts*, and the pedagogical approach for the workshop with the purpose of helping the students achieve the objectives and turn the *objects* into *outcomes*.

In the initial iteration of the workshop, a problem-based approach was not fully realized, and the instructional method included presenting a slide lecture on effective communication etiquette in the workplace, introducing a model for conflict resolution and, rehashing the key elements of effective presentation in terms of preparation and delivery, and asking the students to present on how these might be applied to their own work situations.

Based on his *boundary-crossing* experiences, the lecturer decided that the object(ive) had to be more substantial than previously stated, and the means of engagement had to be more compelling for students and facilitators alike. This was one of the main reasons for modifying the principal presentation task to include *an imagined audience*, the workshop participants' juniors. With this hypothetical group as an intended audience, student participants were asked to place themselves empathetically in the shoes of those interns who would follow them into the same or similar workplace challenges. The assumption made was that this created scenario would give more significance to the task. In terms of AT, adding this imaginary audience component became tantamount to expanding the *community* of the activity beyond the workplace and the walls of the workshop.

At the same time, a set of specific 'hurdles' (to use the workshop term) were devised that the students were asked to complete by the end of the workshop so that they might demonstrate a satisfactory level of achievement. These included one set of team-based minutes for an out-of-workshop meeting (and to be signed by each team member), an individual *Communication Challenge Scenario* worksheet completed by each team member, and a team-based set of slides for the final presentation that would focus on those guidelines for managing effective workplace relationships; all of these aligned neatly with the workshop's specific communication outcomes. Within the lens of AT, the achievement hurdles, workshop overview document, the facilitator's PowerPoint slide deck used in each of the two workshop sessions, the web-based technology used to coordinate information sharing and record keeping, the students' self-created guidelines became *artifacts* that would significantly serve in support of student understanding and expansion of learning. This change supports Engeström's (1987, as cited in McAvinia, 2016) emphasis that new objects

come into view and the system of activity is capable of evolving; activity systems are inherently dynamic and complex and ripe for modification and expansion.

That such an evolution of the workshop can be explained by the AT demonstrates yet again how AT as an analytic tool is appropriate for our reflection. In mapping the workshop to the other components of the activity theory, it is relevant to recall that Engeström believed it is necessary, within the context of classroom discourse, to move beyond the individual. In the third-generation model, he developed what he called the "conceptual tools to understand dialogue, multiple perspectives, and networks of interacting activity systems" (2001, p. 135). This was to provide for what he had characterized as "boundary crossing", that dimension of human activities in which "the seemingly self-sufficient worlds and scripts of the teacher and the students occasionally meet and interact to form new meanings that go beyond the evident limits of both" (p.135).

As mentioned earlier, the 'boundary crossing' was reflected both when the lecturer was able to empathize with the student interns' workplace challenges and give each of them instructive feedback and then on several other levels of interaction. By modifying the initial format of the workshop, the lecturer was playing the role of a subject within his own activity system. At the same time, his interaction within individual students' systems was making him a full participant in parallel systems, with his own complex interests, intentions, mediating artifacts and rules. The lecturer was acting as his own subject in his own system – as the learning experience designer and workshop facilitator – with the student participants acting as influential members and mediating his learning design and pedagogical practices, behaviors, and overall experience. As explained earlier, Engeström refers to these interlaced communities and the added complexity of interacting systems as the "the multi-voicedness of activity systems" (2001). In the case of the IWSP workshop, the intern participants are operating within one system, and the learning experience designer/workshop facilitator in another, yet they come together and create a new, separate system (no matter how temporal) with some individual goals being idiosyncratic and others clearly overlapping and interwoven.

The utilization of AT as an analytical tool for reflection on the workshop facilitated the lecturer's explicit recognition that the objects of the activity system, the workshop, were shaped by the interests of the stakeholders as well as his own perceptions of the students' needs. These perceptions were initially formed by information gathered from various stakeholders. However, through the process of *boundary-crossing* between the lecturer and participants during the workshops, new meanings were formed beyond the evident limits of the lecturer's initial understanding of the workshop objectives, the nature of effective course design, and his pedagogical approach. Through the application of AT's *boundary-crossing* in this reflection, the the lecturer was able to reassess his participation in the workshop and critically evaluate and improve his teaching practices. At the same time, the reflecting on his practice allowed him to externalize his knowledge, skills, and attitudes in a more objective manner.

4. DISCUSSION

Our analysis of the IWSP workplace communication workshop through the lens of Activity Theory (AT) shows its evolving dynamics and highlights the interplay between its various components—students, tools, rules, and communities. Our reflection underscores the potential of AT in analyzing and enhancing the pedagogical design, revealing critical insights into the workshop's mediating artifacts, the implications of boundary-crossing, and the creation of shared meaning through multi-voicedness.

4.1 The evolution of the workshop: a dynamic activity system

The workshop, as initially conceived, had a static structure that relied on a slide lecture to convey workplace communication concepts. However, its redesign and subsequent evolution align with Engeström's (1987) principle that activity systems are inherently dynamic and subject to modification. The initial iteration lacked a problem-based approach and engaged students in a unidirectional manner. In contrast, the revised version incorporated problem-based learning tasks and interactive engagement, reflecting the transformation of the system's objects into multifaceted outcomes.

McAvinia's (2016) assertion that "objects are 'transformed' into outcomes by activities" (p. 67) is particularly relevant here. The students' collaborative efforts to produce workplace communication guidelines exemplify this transformation. The guidelines, initially an object within the activity system, evolved into a mediating artifact that was used to facilitate further learning and became a tool for future workplace applications. This iterative process underscores the dynamic and fluid nature of activity systems, wherein objects, tools, and rules continuously influence and reshape each other.

4.2 Mediating artifacts as catalysts for learning

The mediating artifacts employed in the workshop, such as the Communication Challenge Scenario Worksheet (CCSW), team meeting agendas, minutes, and presentation slides, provided the scaffolding needed for students to reflect critically on their workplace experiences. They were also used to help students externalize their insights. As Engeström (1987) emphasized, mediating artifacts are integral to the activity system that can enable participants to engage with and transform their learning processes.

The CCSW, in particular, as a mediating artifact, was designed to guide reflection and problem-solving. By addressing dimensions such as communication context, expectations, breakdowns, and resolutions, the worksheet enabled students to analyze their challenges

systematically. As mediating artifacts, theoretical models, such as the Johari Window (Verklan, 2007) and the Thomas-Kilmann Conflict Resolution Model (Mishra, 2021), were used to further enrich the reflection and learning process. These models served as additional mediating artifacts, encouraging students to apply theoretical frameworks to real-world scenarios and develop actionable strategies. The team discussions, which revolved around individual CCSWs, allowed students to share diverse perspectives and collaboratively develop workplace communication guidelines. This collaborative process exemplifies McAvinia's (2016) observation that artifacts can serve as conduits for shared meaning-making and community-building within an activity system.

4.3 Boundary-crossing and multi-voicedness in the workshop

Engeström's (2001) concept of boundary-crossing is particularly illuminating in understanding the lecturer's role in the workshop. By empathizing with students' workplace challenges and modifying the workshop design accordingly, the lecturer transcended the boundaries of his own activity system. This iterative engagement highlights the importance of interaction between activity systems, wherein the lecturer's insights into students' needs informed the workshop's objectives, tools, and rules.

Boundary-crossing was also evident in the workshop tasks that connected the students' academic learning with their workplace experiences. For example, tasks like drafting meeting agendas and minutes mirrored real-world practices can enable students to transfer their learning from the workshop to the workplace. The introduction of an imagined audience of junior interns further expanded the community of the activity system, encouraging students to adopt a mentorship perspective to deepen their engagement.

The multi-voicedness, as described by Engeström (2001), is another critical factor in system's success in achieving its outcomes. The student interns were encouraged to share their diverse experiences and perspectives to enrich the workshop discourse and foster a collaborative environment where individual insights coalesce into shared learning outcomes. Multi-voicedness as a pedagogical practice was adopted as AT highlights the interconnectedness of activity systems and the potential for mutual enrichment through dialogue and collaboration.

4.4 Implications for Pedagogical Practice

The application of AT to the IWSP workplace communication workshop has several implications for the design and facilitation of learning activities. First, the dynamic nature of activity systems underscores the importance of flexibility and responsiveness in

pedagogical practice. The lecturer's ability to adapt the workshop design based on students' needs exemplifies the value of reflective practice in fostering continuous improvement.

Second, the strategic use of mediating artifacts shows their potential to scaffold learning and promote deeper engagement. Structured tools like the CCSW not only can guide individual reflection but also facilitate collaborative problem-solving and shared meaning-making. This practice aligns with McAvinia's (2016) observation that artifacts are central to the co-construction of knowledge within activity systems.

Finally, the concept of boundary-crossing offers a valuable framework for understanding and facilitating interactions between different activity systems. By encouraging students to reflect on their workplace experiences within the broader context of workplace dynamics, communication workshops for university interns can foster a holistic understanding of communication and relationship management. This approach highlights the potential of boundary-crossing to create meaningful connections between academic and professional learning contexts.

5. CONCLUSION

We adopted Engeström's activity theory (Engeström, 2001) as an analytic tool to reflect upon the development and facilitation of a workplace communication workshop for university student interns during their industry attachment. Our reflection shows that the utilization of AT as an analytical tool for reflection can be highly effective in assisting educators to examine and externalize their knowledge, skills, and attitudes more systematically. This process can facilitate a deeper understanding of their learning experience design and teaching practices and support ongoing professional development.

The adoption of AT as an analytic tool in reflective practice modules in teacher education and training programs may prove particularly useful for enabling prospective and novice teachers to engage in reflective practice and purposefully extend their teaching expertise throughout their careers. Educators may consider applying AT as an analytic tool in their practices and writing AT-based reflections, *mediating artifacts*, to share with their peers their knowledge, skills, and attitudes of developing and implementing effective courses. These shadings may result in *boundary-crossing* and contribute to the ongoing improvement of learning experience design and teaching practices.

Our paper reflects on the development and facilitation of a workplace communication workshop through the lens of Activity Theory. It focuses on externalizing the knowledge, skills, and attitudes required for designing and teaching such workshops for university intern students, rather than studying student perceptions. Consequently, we did not collect data from our student participants. Future researchers may want to build on our work by gathering

data from their participants to provide insights into their participants' experiences as actors within the activity system.

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