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Work integrated language learning: Boundary crossing, connectivity, and L2 affordances

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Abstract

In contexts of transnational migration, language skills provide the key to employability and successful integration into host country societies. To enhance the learning process, and facilitate transitions into the workforce, integrated programs of L2 learning have been developed in several Nordic countries. In these undertakings, language learning, vocational education, and workplace practice are combined, the rationale being that each element is enhanced by the others. Drawing on interviews with L2 teachers, vocational educators, and workplace supervisors on five integrated programs in Sweden, this study explores the ways in which connections between program elements are created. Results indicate that when boundaries are crossed, learning affordances arise. Two categories of affordances are identified. While domain affordances facilitate the development of practice knowledge within a relevant occupational/linguistic sphere, communication affordances facilitate engagement in L2 interaction, and increase students' willingness to communicate. Implications of the research are assessed, and proposals for the future study of work integrated language learning are made.

Keywords: migration, L2 learning, work integrated learning, boundary crossing, affordances, willingness to communicate

Introduction

At a time when transnational migration is spurred by climate change, regional conflicts, and increasing economic imbalances between the Global North and the Global South (Canagarajah, 2021), the need for effective programs of education for migrant language learners has never been greater. While language skills can enhance employability, for many migrants, access to the target language in contexts beyond the classroom can be limited. In conditions of social and linguistic duress—circumstances in which language learning takes place from positions of marginalization, and where opportunities for meaningful L2 use are few (Ortega, 2018)—programs of education that attempt to integrate classroom and workplace learning have the potential to enhance L2 development, facilitate transitions into the workforce, and support successful integration (e.g., Derwing & Munro, 2013; Riddiford & Holmes, 2015; Yates *et al.*, 2015).

While attempts to include workplace learning in second language programs have mostly taken place in project form—often in collaboration with research (e.g., Holmes & Vine, 2021)—in the Nordic countries integrated programs are more widespread (National Education Agency, 2019). Despite the potential of combining classroom and workplace learning, research is limited. Little is known about the ways in which L2 learning in classroom and workplace settings might be mutually enriched when interactions between settings occur (Yates, 2017, 2021). Focusing on L2 programs that integrate language, vocational, and workplace learning, the purpose of this study is to investigate ways in which connectivity is achieved, and to explore the benefits that may arise.

Literature Review

Migration and workplace language learning

In contexts of migration, the acquisition of a new language can occur during a period of life that can involve the loss of material resources, social and cultural capital, self-esteem, and self-confidence. Associated with acculturation stress and demanding significant personal resilience (Henry, 2016a, 2016b; Henry & Davydenko, 2020), language learning in migration contexts is never simply a matter of developing communication skills (Ortega, 2018). Rather, it "demands a reconsideration of one's place in the world and one's desired and attainable futures" (Ortega, 2018, p. 19). Alongside the challenges that arise in contexts of *social duress*—where L2 learning takes place from positions of marginalization—in many settings language development is additionally hampered by *linguistic duress*; a lack of opportunities to make use of developing L2 skills in contexts beyond the classroom (Ortega, 2018). Often, a plateau can be reached where learners may have developed basic L2 skills, but struggle to find use opportunities in community contexts. This can have negative effects on employability and successful integration (Derwing & Munro, 2013; Yates, 2017).For migrants who have opportunities to use the L2 in workplace contexts—during a work placement, as a trainee, or in employment obtained through their own personal endeavors—experiences are often positive. Internships and work placements are frequently identified as periods when L2 progress has been most noticeable (Henry & Davydenko, 2020). As Yates (2017, p. 425) has observed, "it is often the workplace itself that is the most significant site for migrant language learning."

Drawing on work investigating the L2 development of adult migrants, and with a particular focus on learning beyond the classroom, Yates (2021) has identified five factors that facilitate L2 acquisition. These are (i) *awareness* of the long-term and complex nature of the L2 learning process, and that classroom learning is insufficient to obtain the skills needed for successful integration, (ii) positive *attitudes* to the learning process, a desire to succeed, and resilience when encountering hardships, (iii) personal *autonomy* and the ability to identify language learning needs, and to take charge of the

L2 learning journey, (iv) individual *agency*, and the ability, freedom, time, and space to pursue L2 aims and engage in L2-developing activities, and, finally, (v) the ability to attune to, engage with, and capitalize on *affordances* for L2 learning in the surrounding environment.

Affordances in workplace environments

While the initial "A's" in Yates's taxonomy (awareness, attitudes, autonomy and agency) relate to the capacities of the learner, the final "A"—affordances—references the qualities of both the learner *and* the environment. An affordance is something in the environment that, when acted upon by the learner, can facilitate (or constrain) development (Aronin, 2014; Henry, 2016a; Otwinowska-Kasztelanic, 2011; van Lier, 2000). An affordance is enabling of development when it is recognized as such. As Segalowitz (2001, p. 15) makes clear, for the L2 learner, this "involves attuning one's attention system to perceive the communicative affordances provided by the linguistic environment." In contexts of migration, situations where it is possible to use the host country language in community contexts, and in spaces between formal and informal learning, provide valuable opportunities for development. From this perspective, the concept of affordances provides an important way of understanding how, when adult learners *recognize* and *react to* language features and opportunities for communication in TL environments, development is facilitated (Henry, 2016a).

Drawing on long-term research into L2 learning in workplace environments, Yates (2017) has identified affordances that can facilitate language development. Enabling affordances include opportunities to engage with L2-speakers beyond the classroom, and the experience of being challenged to use more sophisticated language. While interactions in basic service jobs (stores, beauty salons and fast-food outlets) can prove repetitive, they can support confidence in L2 use. Conversations with colleagues can be similarly enabling. Co-workers can introduce and explain essential vocabulary and can be accommodating in supporting comprehension. As Yates's (2017) work indicates, workplace affordances such as these can enhance learners' motivation, engagement with language, and their willingness to communicate.

Reflecting on these findings, Yates (2017) has suggested that "while the workplace can potentially offer useful opportunities for language learning, its effectiveness depends heavily on the specific circumstances of the employment context and an individual's ability to make the most of them" (p. 432). With regard to facilitating affordances, and their implications for L2 education, Yates argues that "language instruction programmes that include work placements potentially offer a way of offering some of the advantages of both worlds" (p. 432). Continuing, she suggests that when "appropriately organized and offered in conjunction with instruction that opens up rather than limits horizons, work placements can give learners experience of the workplace and insight into how different jobs might contribute or otherwise to their language learning" (Yates, 2017, p. 432).

Educational provision in Sweden

In Sweden, there is a long history of offering refuge to asylum-seekers and providing instruction in Swedish to those newly-arrived in the country. Alongside compulsory and tertiary education, "Swedish for Immigrants" (SFI) forms part of the national educational system (Ahlgren & Rydell, 2020; Lindberg & Sandwall, 2017). SFI dates back to the 1960s, and it is funded by the state. However, municipalities have responsibility for local provision (Lindberg & Sandwall, 2017). Tuition is either provided by the municipality themselves or can be outsourced to private enterprise. Courses are free of charge. Migrants in need of language education up to level B1 in CEFR who are registered in a municipality have a right to be offered 15 hours a week of tuition (SOU 2020:66).

The SFI-syllabus has a communicative approach and usage of the target language in various social contexts is emphasized.

In SFI programs, language education is normally provided together with vocational education designed to acquaint participants with a particular area of working life. Vocational training is also common, with around 50% of SFI programs including periods of workplace practice (National Education Agency, 2017; Unionen, 2018).

Generally, L2 learning, vocational education, and workplace practice are provided as consecutive modules. However, in a few cases, attempts are made to combine these elements in integrated programs (Dahlström & Gannå, 2017). In cases where collaboration between language teachers, vocational teachers, and workplace supervisors has been achieved, and where integration has been successful, possibilities for gaining a footing on the labour market have improved (National Education Agency, 2019).

As the National Education Agency (2019) makes clear, when integration is achieved, "vocational education, knowledge about the vocation, and knowledge about language learning go hand-in-hand and can enhance each other" (p. 11; authors' translation). However, while the benefits of integration are beginning to be recognized, little scientific research has been carried out. Studies that do exist suggest that integration can be difficult to accomplish. Despite good intentions, students can often experience the different elements as separate entities. For example, in a single-case ethnographic study from Finland, Strömmer (2016) found very little interaction between program elements. During work placements, participants could experience loneliness and isolation. This finding chimes with earlier results from Sweden, where Sandwall (2010, 2013) concluded that while integration has the potential to improve opportunities for language development, it may not be easy to achieve. In a study of collaboration between an SFI provider and municipal bodies aimed at supporting the entry of newly-arrived migrants into the labor market, Hamberg (2015) found that while staff from different settings worked hard to collaborate, integration was challenging since they approached the task from different professional standpoints.

Study and Purpose

While L2 skills are important for individuals and host country societies, and while effective acquisition involves active participation in educational *and* naturalistic settings (Derwing & Munro, 2013; Yates, 2021), there is a lack of research investigating the ways in which formal and informal learning can be profitably combined (Yates, 2017). In Sweden, where education for adult migrants is well-established, attempts have been made to create integrated programs in which L2, vocational, and workplace elements are combined. However, while an integrated program can offer valuable opportunities for language development, it "presupposes a method, where the L2 teacher, the vocational teacher and, to a certain extent, the practice supervisor consciously work in cooperation" (National Education Agency, 2019, p. 11; authors' translation).

Against the backdrop of studies pointing to the challenges involved in successfully integrating program modules in ways that can benefit students' L2 learning (Hamberg, 2015; Sandwall, 2010, 2013; Strömmer, 2016), and research highlighting the need to investigate interactions between workplace and classroom learning in vocational education (Bakker & Akkerman, 2019), the current study examines ways in which connections can be created, and explores the learning affordances that arise when connectivity is achieved. Drawing on interviews with language teachers, vocational educators, and workplace supervisors from five integrated programs in Sweden, and employing an analytical framework that draws on theories of boundary crossing (Akkerman & Bakker, 2011a,

2011b, 2012), the purpose of the study is to identify ways in which continuities between program settings are established, and to examine the affordances that arise when educational practices and interactions involve the crossing of boundaries. To guide the analyses, the following research questions were formulated:

RQ 1   How are continuities between practice settings established, and what types of boundary-crossing take place?

RQ 2   What affordances are associated with boundary crossing?

Theoretical Framework

Boundary crossing

For its theoretical framework, the study draws on the concept of boundary crossing (Akkerman & Bakker 2011a, 2011b, 2012; Bakker & Akkerman, 2014, 2019). In workplace learning, boundary crossing—"negotiating and combining ingredients from different contexts to achieve hybrid solutions" (Engeström *et al.*, 1995, p. 319)—plays an essential role in skills development. At the interfaces of different sociocultural practices, and in the processes through which a boundary is encountered, navigated, and traversed, possibilities for development arise from the "discontinuities in actions or interactions" (Akkerman & Bakker, 2011a, p. 136). Boundary crossing can thus be defined as "the efforts to establish or restore continuity in action or interaction across different practices" (Bakker & Akkerman, 2014, p. 225). While boundary crossing has been studied extensively within educational and workplace settings, far less is known about transitions between practice settings, and the potential for development that arises through interactions of experiences from classroom and work-based learning. Yet, these transitions are crucial. If learners are unable to connect learning in different settings, learning from one setting is less likely to enrich learning that takes place in another (Bakker & Akkerman, 2019).

In transitions between classroom and workplace, and the creation of connections between these settings, learning affordances can arise. However, an affordance becomes such only through the active attunement of the individual to its facilitating qualities (van Lier, 2000). Thus, there is a need for the individual to identify, to engage with, and to make attempts to reconcile contributions from different educational settings. In programs that seek to integrate classroom and workplace learning, connections are created through forms of boundary crossing. Thus, in research, it becomes necessary not only to identify instances of boundary crossing, but also how connectivity can generate affordances for learning, and how an affordance can "provide access to the kinds of knowledge that individuals [need] to be effective in their selected occupations" (Billett, 2015, p. 48).

Boundary crossing and scale levels

In practice settings, it is important to identify the scale level at which boundary crossing takes place. As Bakker and Akkerman (2019) make clear, boundary crossing can be found at individual, group, and institutional levels.

At an *individual level*, boundary crossing involves the attention and engagement of participants at a practice boundary, for example when students try "to connect two or more different parallel participations, such as a school program and a workplace" (Bakker & Akkerman, 2019, p. 354). At this level, boundary crossing involves the "*people* and *objects* that, figuratively speaking, play a central role at the boundary" (Akkerman & Bakker, 2011a, p. 139, emphasis added). A *boundary crosser* is a person who is a member of more than one practice community, or who moves between

sites (Akkerman & Bakker, 2011b). In an educational context where subject learning, vocational education, and workplace practice are integrated, a boundary crosser could be a teacher, supervisor, or mentor who follows students as they move between different classes, or who visits different sites. A *boundary object* is an artifact that conveys different meanings for different people, but can facilitate cooperation between individuals, and can function in ways where different perspectives and interests can profitably interact. Not only facilitating flexibility in interpretations, boundary objects can also function as "organic arrangements that allow different groups to work together, based on a back-and-forth movement" (Akkerman & Bakker, 2011a, p. 141). In an integrated program, a boundary object could be a digital photograph taken during workplace practice, and which is subsequently used in subject and/or vocational teaching.

At the *group level*, boundary crossing involves shared aspirations, and the intentional engagement of collections of individuals from different practice settings. At the *institutional level*, partnerships are similarly involved. Here, collaborations are sustained, and have the aim of facilitating "dual trajectories" for student participants (Bakker & Akkerman, 2019, p. 354).

At the group and institutional levels, boundary crossing takes the form of boundary interactions, and boundary practices. In a *boundary interaction* cooperation takes place between persons from different sites. An example of a boundary interaction would be where a subject teacher jointly carries out an activity with a vocational educator or a workplace supervisor. In a *boundary practice* more enduring forms of collaboration emerge from interactions between two sites (Akkerman & Bakker, 2011b). Often, boundary practices constitute novel and emergent routines that function to bridge between practices when joint work is undertaken. An example of a boundary practice would be when team-teaching is systematic and sustained over a longer period, or when visits between classroom and workplace are recurrent, and form a structured part of a module or program.

Method

Identifying integrated programs

The first stage of the research process was to identify integrated programs where the study could be carried out. Programs that integrate L2 learning, vocational education, and work placements are frequently provided on a project basis. They do not follow strict academic semesters, and often commence when there are sufficient student numbers. After spending time monitoring online networks where SFI teachers interact and exchange ideas, contact was made with two educational providers offering integrated programs encompassing (i) L2 learning, (ii) vocational education, and (iii) work placements. Thereafter, contact was made with principals and teachers involved in coordinating these programs. These discussions indicated that five of the programs offered by these providers would be suitable for the research objectives. In these programs, students took nationally prescribed courses in Swedish (SFI courses C and D, CEFR A2/A2 + and B1/B1+ respectively), and vocational courses in accordance with the curriculum for upper secondary education. Work placements were provided by municipalities and local enterprises.

The five programs

The profiles of the studied programs were preschool education, manufacture, and elderly care (at Provider A), and manufacture and catering (at Provider B). While at Provider A, workplace practice was structured in longer periods, at Provider B alternations between campus and workplace were more closely spaced, with (generally) three days per week spent on campus, and two days in the workplace.

Interviews

Interviews were carried out with L2 teachers, vocational educators, and workplace supervisors. The L2 teachers were interviewed first. At the end of the interview, they were asked to recommend a vocational colleague who could be interviewed. In a further turn, the vocational educators were asked to recommend a workplace supervisor for the same purpose. In total, interviews were carried out with 13 people (see Table 1).

Table 1 The investigated programs

Program	Profile	Elements	Interviewees	Gender	Age
Provider A					
1	Preschool				
		Swedish	L2 teacher	F	60-64
		Vocational	Vocational educator	F	50-54
		Practice	Workplace supervisor	F	50-54
2	Manufacture				
		Swedish	L2 teacher	F	30-34
		Vocational	Vocational educator	M	50-54
		Vocational	Vocational educator	M	45-59
3	Elderly care				
		Swedish	L2 teacher	F	50-54
		Vocational	Vocational educator	F	55-59
		Vocational	Workplace supervisor	F	30-34
Provider B					
1	Manufacture				
		Swedish	L2 teacher	F	40-44
		Vocational	Vocational educator	M	40-44
2	Catering				
		Swedish	L2 teacher	F	40-44
		Vocational	Vocational educator	F	50-54
		Practice	Workplace supervisor	F	50-54

Note: For programs 4 and 5, the L2 teacher is the same person. At programs 2 and 4, it proved difficult to interview practice supervisors. At program 2 an interview was carried out with a vocational teacher with insight into workplace practice.

The interviews were carried out by the first author and took place in the spring and autumn of 2020. The longest interview lasted 88 minutes, and the shortest 16 minutes. Interviews were structured around the following themes:

- Experiences of working with the integrated program.
- How integration between language teaching, vocational education, and workplace practice could be achieved, and the possibilities and challenges involved.
- Students' motivation and willingness to communicate.

The interviews were audio-recorded and transcribed verbatim. Transcripts were entered into Nvivo 12, creating a corpus of some 136,000 words.

Development of an analytical framework

The transcripts were read separately by both authors. Thereafter, and in line with Bakker and Akkerman's (2019) argument that in empirical investigations, boundary crossing phenomena can be used as "sensitizing concepts" (Blumer, 1954), an analytical framework was developed. The purpose of this framework was to identify instances of boundary crossing between program elements. Set out in Figure 1, these are boundaries between (i) practices in L2 classrooms and workplace settings (B1), (ii) practices in L2 and vocational classrooms (B2), and (iii) practices in vocational classrooms and workplace settings (B3).
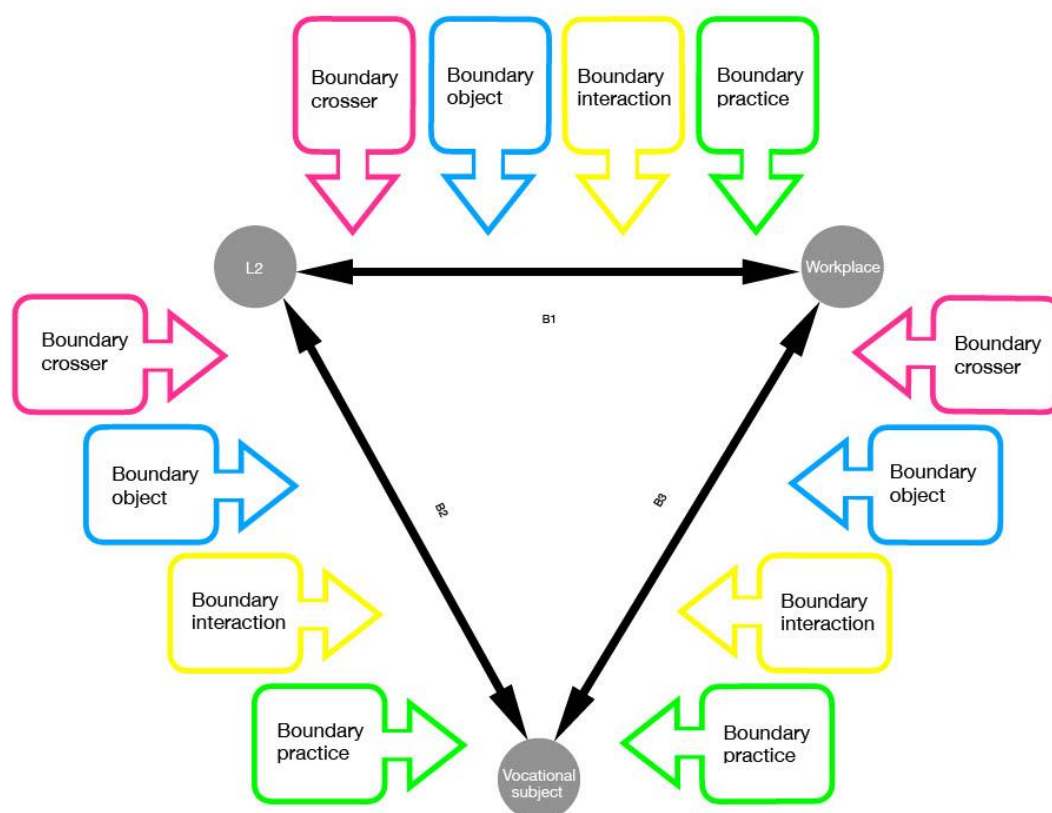

Figure 1 *Model of the analytical framework.*

Coding

In the next stage, the analytical framework was used to code the data. Employing a deductive thematic analytical approach (Braun & Clarke, 2006), examples of boundary crossing were identified and categorized into four types: (i) *boundary crossers* (people who cross boundaries), (ii) *boundary objects* (artifacts that facilitate intersections), (iii) *boundary interactions* (intermittent and/or spontaneous forms of cooperation between people from different settings), and (iv) *boundary practices* (more enduring forms of collaboration). When there was a difference in opinion regarding the coding of a data segment, discussions continued until consensus was reached. Coding took place using NVivo 12.

Next, follow-up interviews were carried out. The purpose of these interviews was (i) to ensure that examples of boundary crossing had been accurately understood, and that the coding of these segments had been appropriate, and (ii) to identify any further examples of boundary crossing not initially mentioned. For this purpose, informants with the best insight into the practices of each program were selected. In each case, this was one of the L2 teachers. These interviews were carried out by the first author and lasted for between 32 and 112 minutes. The interviews were audio-recorded and verbatim transcripts were made. Together these totalled some 38 000 words. Transcripts were entered into the NVivo file and coded in a similar way.

Ethics

Approval for the research was obtained from the Swedish Ethical Review Authority (2019-03449; 2020-00512). The study was carried out in accordance with relevant ethical principles. Information about the purpose of the study, confidentiality, the fact that participation was voluntary, and that consent could be withdrawn at any time, was provided to the participants orally, and in writing.

Results and Discussion

Using the framework presented in Figure 1, instances of boundary crossing are presented for each program. Thereafter, affordances for development are explored.

How are continuities between practice settings established, and what types of boundary-crossing take place? (RQ1)

Program 1 Preschool education

In this program, L2 and vocational modules were combined with practice at municipal preschools. In the vocational module, education was carried out in accordance with the upper secondary curriculum for pedagogical work (*Pedagogiskt arbete på gymnasienivå*). The aim of the module was to provide an overview of children's development, and the arenas in which work with children is carried out. An important objective was to develop the ability to communicate, interact, and collaborate in working contexts. The purpose of the workplace element was to provide students with an initial orientation of work practices, and opportunities to experience language use associated with work with younger children. During practice periods, students were given assignments that involved planning, carrying out, and evaluating activities with children. These were jointly assessed by the L2 teacher and vocational educator.

Analysis of the interview data indicate that boundary crossing took place at all 3 boundaries. At the *individual level*, boundary crossing was achieved through the mediation of *boundary objects* (e.g., digital photographs, logbooks, assignments), and through the actions of a *boundary crosser* (a participant who also worked as a temporary assistant at one of the preschools). At the *group/institutional level*, instances of *boundary interactions* included study visits, when the teachers and students visited pre-school-facilities, and took photos of the rooms, which they later used to link vocabulary to what they had observed, as well as the team-teaching of specific lessons, and various types of collaboration. Two examples of *boundary practices* were identified. Here, collaborations between the L2 teacher and vocational educator were enduring, and were structured around assignments, assessment, and term-long planning.
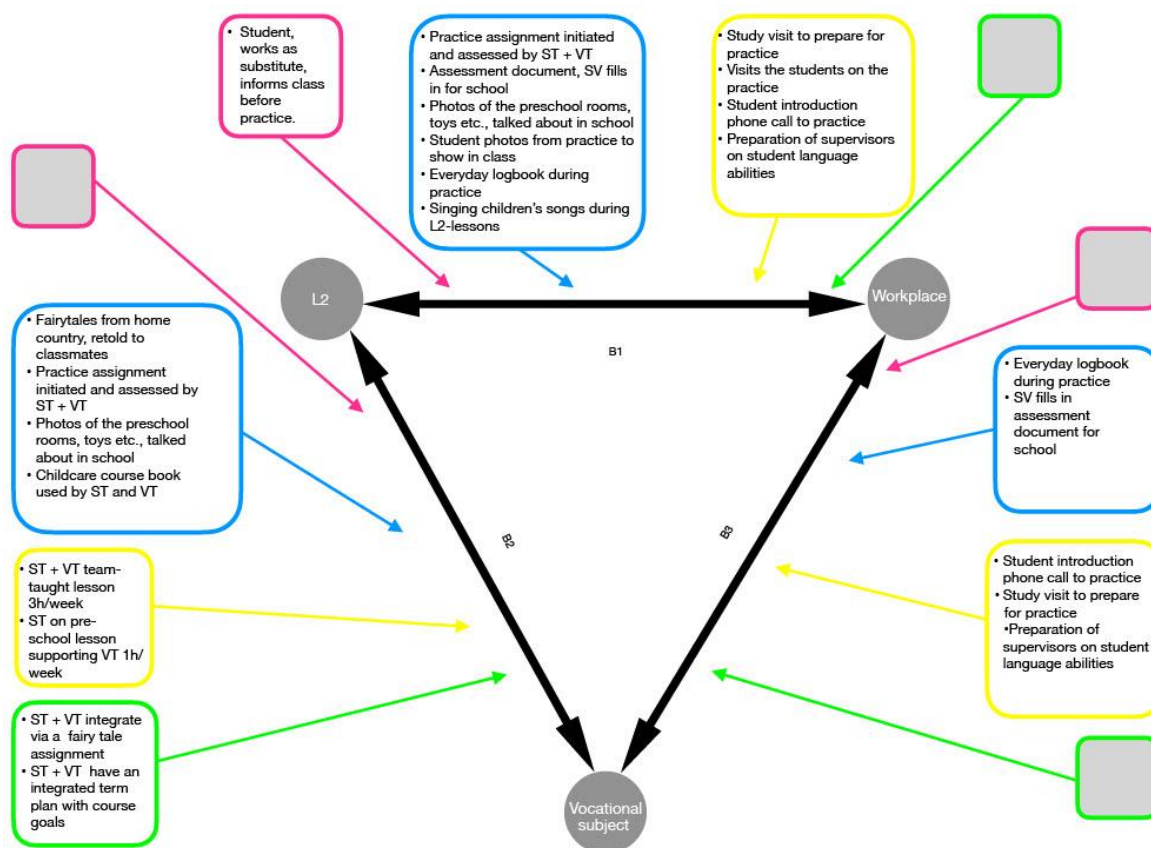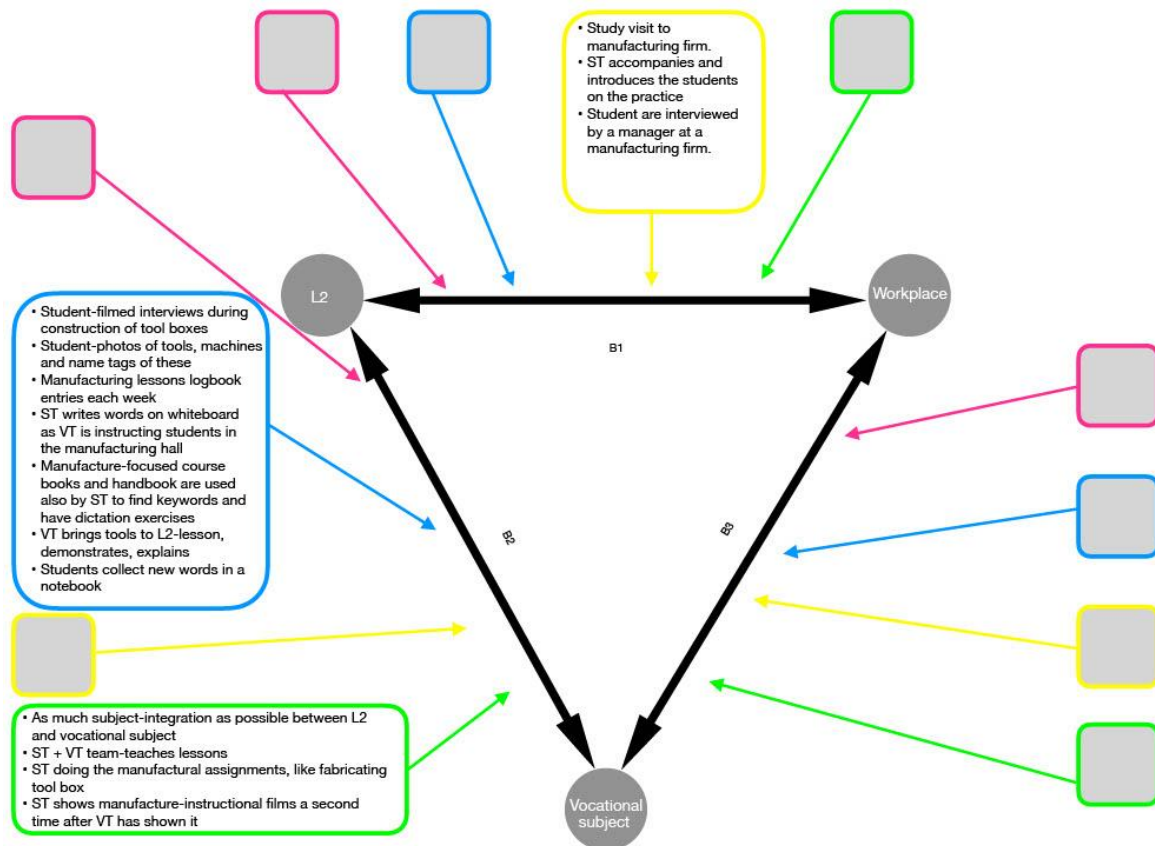
Figure 2. *Program 1. Instances of boundary crossing were found at all three boundaries. Various types of boundary crossing were described, with examples of boundary crossers, boundary objects, boundary interactions and boundary practices.*

Program 2 Manufacture

In this program, L2 and vocational modules were combined with periods of practice in the workshop of a medium-sized industrial enterprise. In the vocational module, teaching was carried out in accordance with the upper secondary curriculum for Production Knowledge (*Produktionskunskap*). The course provided insights into production flows, maintenance, and logistics. The aim was that students should develop a general understanding of production processes, and the ability to make use of relevant concepts and terminology. In the workplace element, the aim was to provide students with an insight into the manufacturing process, and an opportunity to experience the types of language use associated with the production of steel-based products. In workplace practice, students carried out working tasks such as welding, assembly, and packaging.

At the individual level, interviews revealed that boundary crossing was mediated through *boundary objects* that facilitated cross-subject learning. Examples described included use of logbooks, vocabulary lists, activities in which artifacts were constructed, and digital films and photos taken of tools, equipment, and artifacts. At the *group/institutional level*, boundary crossing occurred at the boundary of L2 and workplace elements (B1). Taking the form of *boundary interactions,* these involved visits to the workplace (brokered by the L2 teacher), and a visit to the L2 classroom by the vocational teacher. The L2 teacher describes in her interview how the vocational teacher came to the language classroom, bringing different tools and showing the students how to disassemble and assemble them, and how to name the different parts. At the B2 boundary, collaboration between the L2 teacher and the vocational educators involved cross-subject teaching of a more structured type, and which had the characteristics of a *boundary practice*.

- Study visit to manufacturing firm.
- ST accompanies and introduces the students on the practice
- Student are interviewed by a manager at a manufacturing firm.

- Student-filmed interviews during construction of tool boxes
- Student-photos of tools, machines and name tags of these
- Manufacturing lessons logbook entries each week
- ST writes words on whiteboard as VT is instructing students in the manufacturing hall
- Manufacture-focused course books and handbook are used also by ST to find keywords and have dictation exercises
- VT brings tools to L2-lesson, demonstrates, explains
- Students collect new words in a notebook

- As much subject-integration as possible between L2 and vocational subject
- ST + VT team-teaches lessons
- ST doing the manufactural assignments, like fabricating tool box
- ST shows manufacture-instructional films a second time after VT has shown it

Figure 3 *Program 2. Most instances of boundary crossing occur on the B2 boundary, and there are none at the B3 boundary. No examples of boundary crossers were described.*

Program 3 Elderly care

In this program, L2 learning and vocational education were combined with work practice at care homes. In the vocational module, education was carried out in accordance with the upper secondary curriculum for Health and Social Care (*Vård och omsorg*). The aim of the module was to provide students with knowledge of work with service users, and how to plan, carry out, and assess working tasks. A particular aim was that students should develop the ability to communicate and collaborate effectively with staff and service users. As in Program 1, the purpose of work placements was to provide students with insights into working practices, but here students assumed the role of observers. It was hoped that they would gain an understanding of practice routines, and exposure to language appropriate for this sector.

Like the other programs at Provider A, boundary crossing appeared to mostly take place at the boundaries between the L2 classroom and the workplace (B1), and between L2 teaching and vocational education (B2). At the *individual level* there is an example of a student who functions as a *boundary crosser* (as in Program 1). Working as a temporary assistant at a care home, she provided insights into working practices and routines. Descriptions of *boundary objects* were also found in the interviews. While textbooks travelled between L2 and vocational classrooms (B2) and were used to support the development of specialist vocabulary, there was also an assignment that included L2 and vocational elements and which was jointly evaluated by both teachers. Boundary objects were also found at the B3 boundary. In her interview, the practice supervisor talked about how students worked with checklists of items found at care homes. The vocational educator described how students' self-assessment forms could also travel back and forth between these program elements. At the

group/institutional level, an example of a *boundary interaction* was found, where the L2 and vocational teachers team-taught one lesson per week. The L2-teacher described that during this team-taught lesson, the teachers address things that the students found hard or do various kinds of exercises, among them communication exercises.
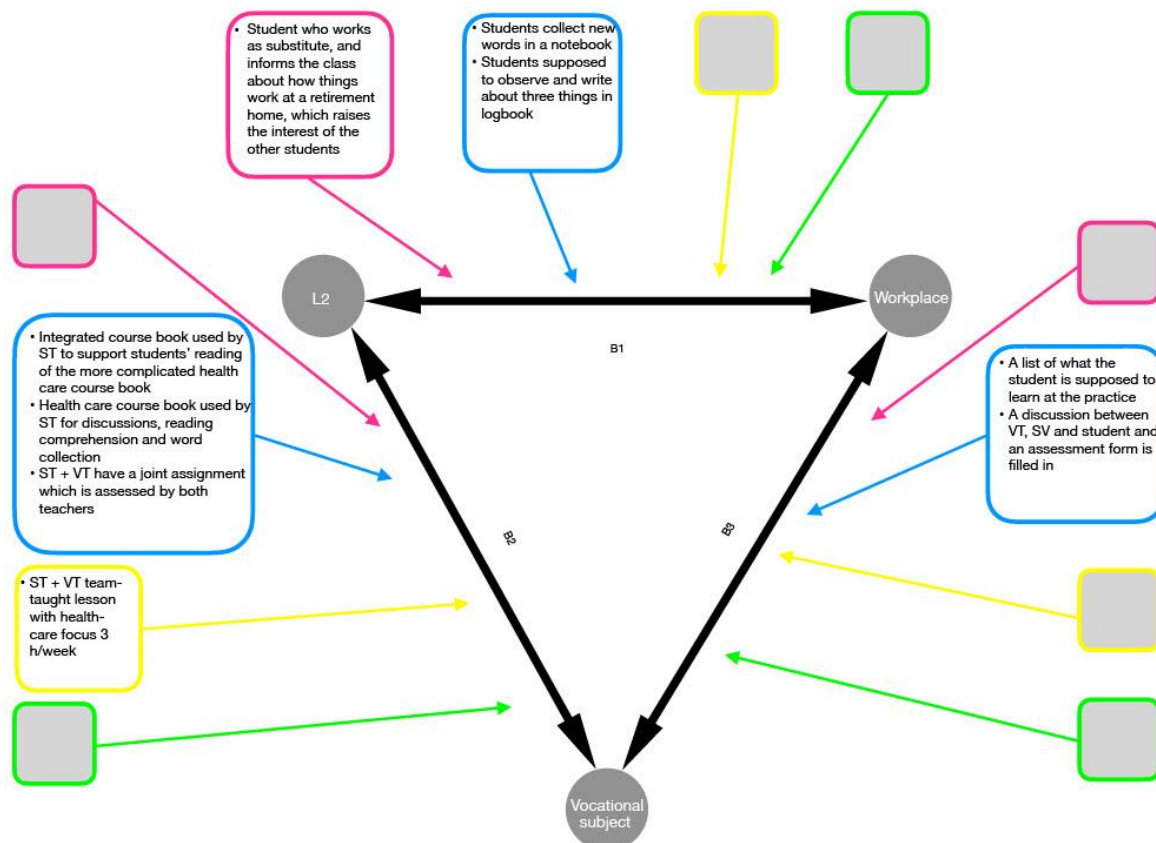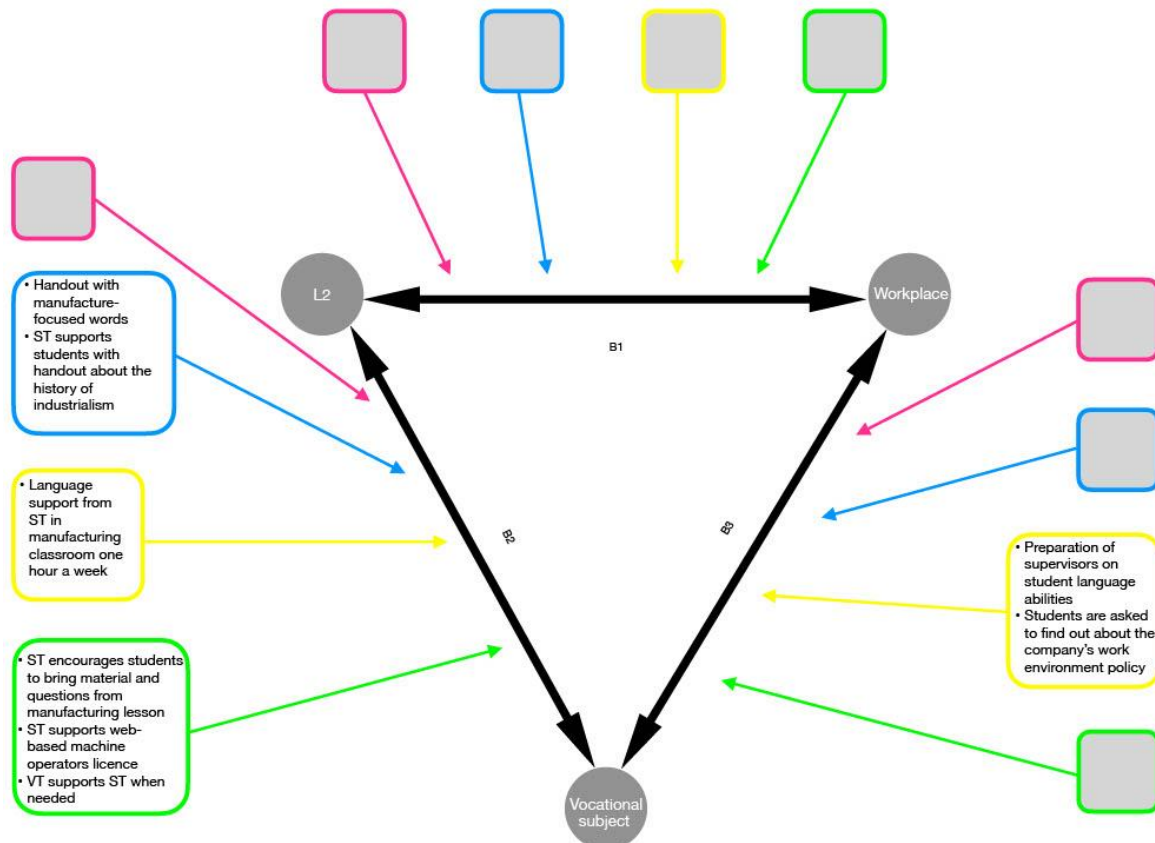

Figure 4 *Program 3. Examples of boundary crossing were described at all three boundaries. Examples include boundary crossers, boundary objects and boundary interactions. No descriptions of boundary practices were given.*

Program 4 Manufacture

As in the manufacturing program previously described, here too L2 teaching and vocational education were combined with practice at an industrial enterprise. In the vocational module, teaching was carried out in accordance with the curriculum for the upper secondary course "People in Industry" (*Människan i industrin*). With the objective of introducing the conditions under which production is carried out, an important aim was to provide students with opportunities to develop the ability to express themselves using appropriate terminology, and correct professional language. In accordance with the integrated design at this provider, students spent two days per week at a manufacturing enterprise over a ten-week period. In addition to working with production, tasks carried out included picking and sorting components, packaging, maintenance, and cleaning.

From the interviews, it appeared that boundary crossing mostly took place at the *group/institutional level*, and between the L2 and vocational modules (B2). The L2 teacher and the vocational educator described how they had developed a collaborative approach where, in a form of *boundary interaction*, the L2 teacher spent one hour per week providing language support to her vocational colleague. Other types of *boundary interaction* were also identified. The L2 teacher described how she encouraged students to bring questions and examples from vocational lessons to the L2 class, and

how she supported students in their endeavors to gain a machine operator's license (a component of the vocational module). Boundary interactions were also found at the B3 boundary. Here, in advance of a placement, the vocational educator described how she had provided workplace supervisors with insights into the students' language abilities, and how students were given a task that involved finding out about the company's work environment policy.
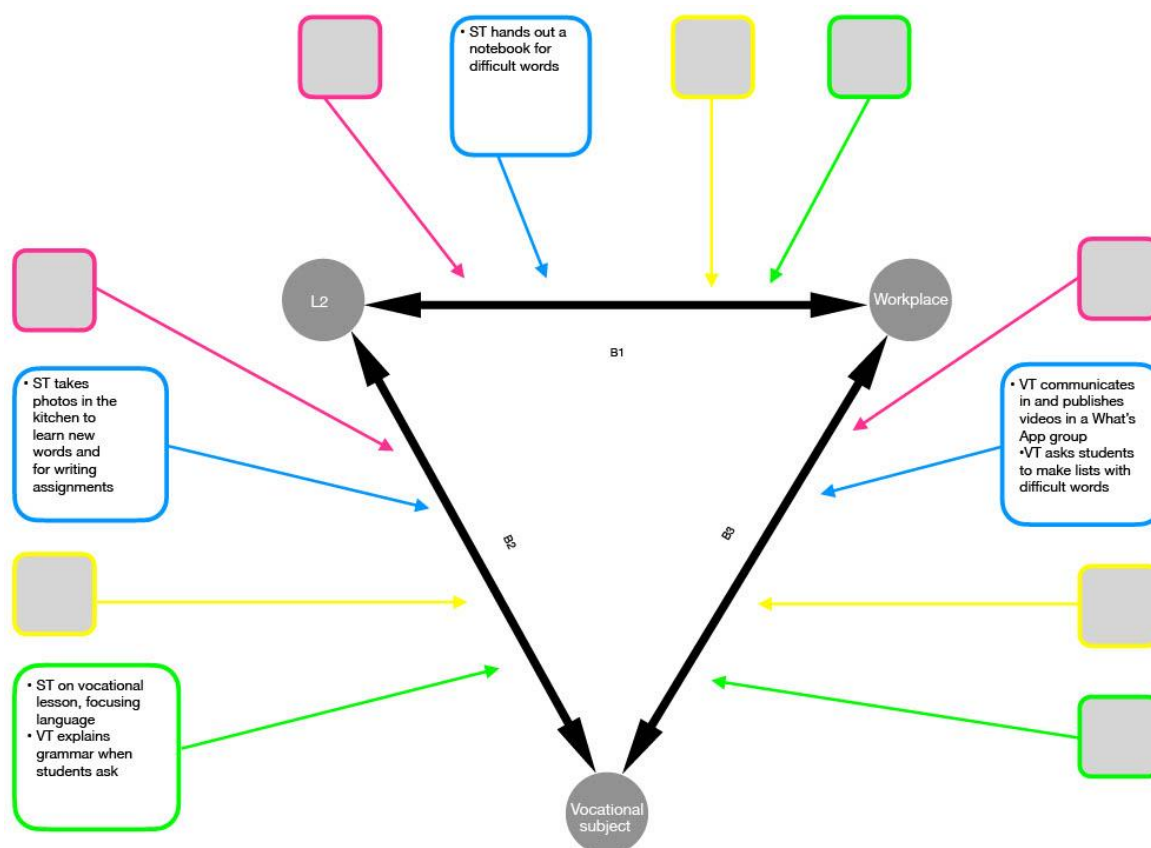

Figure 5 *Program 4. Most examples of boundary crossing occur at the B2 boundary. None were described at the B1 boundary. While examples of boundary objects, boundary interactions, and boundary practices were described, there are no examples of boundary crossers.*

Program 5 Catering

In the final program, L2 and vocational studies were combined with practice in the kitchens of municipal enterprises and local restaurants. In the vocational module, teaching was carried out in accordance with the upper secondary curriculum for Food Preparation 1 (*Matlagning 1*). In this course, the objective was to provide students with knowledge about hygiene, food preparation, kitchen equipment, and food storage. A particular aim of the course was that students should learn to collaborate and communicate appropriately and effectively in work contexts. Each week, students had two days of work practice. Under supervision, students carried out working tasks associated with larger-scale catering.

Here, interviews revealed the fewest examples of boundary crossing. At the *individual level*, examples of *boundary objects* were found at all three boundaries. They involved the use in L2 lessons of digital photos taken in a workplace kitchen, the creation of videos by the vocational educator (which students could refer to during their practice), wordlists compiled during days at the workplace (and which were discussed in vocational lessons), and a notebook which had a similar purpose. At the *group/institutional level*, two examples of *boundary practices* were described; where

the L2 teacher participated in a vocational lesson, using words to describe what the students do when they are in the kitchen, and where the vocational educator explained aspects of Swedish grammar when students requested this.

Figure 6 *Program 5. Examples of instances of boundary crossing were described at all three boundaries. Most examples are of boundary objects. Boundary practices were also described, but no boundary crossers or boundary interactions.*

What affordances are associated with boundary crossing? (RQ2)

In the context of programs that include vocational training, boundary crossing involves the individual's *awareness* of discontinuities between practice settings, and *attunement* to affordances that enable connectivity (Bakker & Akkerman, 2019; Billett, 2015). Presenting the results, we first identify boundary crossing at the individual level (*boundary crossers* and *boundary objects*), and then at the group/institutional levels (*boundary interactions* and *boundary practices*). At each level, we identify two categories of affordance. The first category is *domain affordances*. Influenced by Fishman's (1965) notion of "domain" as a sphere of activity, these refer to affordances that facilitate L2-mediated knowledge, actions, and interactions within a particular occupational setting. The second category is *communication affordances*. These refer to the ways in which the creation of connectivity can promote engagement in authentic and meaningful L2 interactions (Henry, 2016a), and can increase a participant's willingness to communicate (WTC), the intention to speak or to remain silent given free choice (MacIntyre, 2007; see also Henry et al. 2021a, 2021b).

Boundary crossing at the individual level

A *boundary crosser* is a person who is a member of more than one community, or who moves between sites (Akkerman & Bakker, 2011b). In the interviews, teachers talked about two students

who had part-time jobs at a preschool (Program 1), and at a care home (Program 3). As these teachers explained, the students were able to bring workplace experiences into the classroom. In the preschool program, the L2 teacher described how the student could inform the class of the importance of dressing appropriately when working outdoors (Excerpt One). In a similar way, the L2 teacher on the elderly care program described how the student with the extra job had told other students about working routines and workplace practices at the home where she was employed (Excerpt Two):

> EXCERPT ONE (L2 teacher, Program 1)
> One of the women in the class has been a supply preschool teacher for four years, I think. She is not done with SFI. But felt that, "I have to get an education so that I can get a job." She can only get supply jobs here and there. She has been very motivated. So, when they were going to do the practice, we talk about clothes. So, she says like, "Well, it's not fun if you are doing practice, and you are going to be outside but you don't have the clothes, and you stand there freezing." /.../ They don't cost much. You don't even need to buy new. But buy a pair of thermal trousers that you can wear over, so that you don't freeze. So she was like, yes, she clarified this very well I thought.

> EXCERPT TWO (L2 teacher, Program 3)
> R: I have a student who already works in care. This education helps her get her qualification. And she talks a lot about how things are. And it is really great when we are talking about a special area, about hygiene for example. And ask, "How is it with hygiene where you work?" "What hygiene routines?" "Are they followed?" "What are they like?" "Is there surgical spirit everywhere?" "Are there gloves and protective clothing?" "When are they used?" "And so on." /.../
> I: Do you feel that she helps the other students to understand the profession? That she's there and talks about her work.
> R: Absolutely. I think so. And it makes them very interested. That there's someone who, that you don't just talk about a topic, but that there is someone who actually works with it. And not just a teacher. A student who has been out and worked. It's great for the others. They ask a lot of questions. And they want to know. /.../ We have spoken a lot about interaction. And what to do to have good communication. Things like that. If there is someone who wants to know. She has given tips about what to do. There have been lots of questions. What do you do if a patient or service-user won't eat, or won't take their medicine?

Being members of educational and workplace communities, these students functioned as boundary crossers. In demystifying working practices in their respective workplaces, the knowledge and insights brought into the classroom can be understood as functioning as *domain affordances*. These affordances enable fellow students to orientate towards a practice setting in advance of a placement. By providing examples, explaining particularities, and discussing practice routines—"*So, when they were going to do the practice, we talk about clothes*"; "*when we are talking about a special area, about hygiene for example*"—domain-specific linguistic competence is developed, and a smoother integration into the workplace is supported. The recounting of workplace experiences in the L2 classroom also functions as a *communication affordance*. As indicated in these interview excerpts, when students became engaged in meaningful L2 interactions, and were prompted to ask questions and to seek advice from experts within their midst, WTC was enhanced.

A *boundary object* is an artifact which can facilitate cooperation between different settings (Akkerman & Bakker, 2011b). As previously revealed, it is this boundary crossing phenomenon that was most frequently described in the interviews. As with the students who functioned as boundary crossers, boundary objects—digital images, films, and workplace artifacts—also provided *domain* and *communication affordances*. In the following extract, a vocational educator tells how digital photos taken at a workplace setting could generate discussions about practice routines:

> EXCERPT THREE (Vocational educator, Program 1)
> X takes lots of photos there. Then we come back and go through the pictures and talk about what they're about. /…/ We took photos of the cloakroom. We could photograph toys, mealtime furniture. And we had the words with us later during the lessons.
> /…/ We projected them on a screen. And talked about different words to describe things in the pictures which were hard. We went through every word that they were wondering about. And this could be everything from values, because someone has taken a picture of a poster about values in preschool, or a coat-hook or clothes-hanger. It's like everything they see in a picture. They want to know what it is, and what it's called.

Here, the teacher recalled how digital photos taken at a preschool generated discussion of professional values associated with early childhood education ("*because someone has taken a picture of a poster about values in preschool*"). In this way, the photos functioned to create *domain affordances*. By stimulating engagement in meaningful, relevant, and authentic discussion, the photos also functioned as *communication affordances*. As a consequence, WTC was enhanced: "*everything they see in a picture. They want to know what it is, and what it's called*". The way in which boundary objects could function as both *domain affordances* and *communication affordances*, is similarly revealed in the next excerpt:

> EXCERPT FOUR (L2 teacher, Program 2)
> R: We made some short films. I asked them to film one another and they got to ask "What are you doing now?" It could be for example "Here I am cutting this sheet-metal," or, "I'm beating this," or, "Now I'm drilling a hole," or "I have put this at right-angles." So, for the film, they had to find words to describe their work. And then we watched the films in the Swedish class. There was a lovely atmosphere.
> I: What happened when you watched the films?
> R: Partly they had to repeat what they did, put it into words again. And we got another chance to talk. "What was happening in the films?" and "Why did you do it like this?" "Did he do it right?" "Did he do it in the correct stages?"

Here, as well as providing an opportunity to develop skills in using appropriate vocabulary (a *domain affordance*), the students' films were also used as a platform for authentic discussion, the effect being to enhance WTC: "*we got another chance to talk. 'What was happening in the films?' and 'Why did you do it like this?' 'Did he do it right?' 'Did he do it in the correct stages?'*"

Boundary crossing at the group/institutional level

At the group/institutional level, boundary crossing can occur through *boundary interactions* (looser, ad hoc, forms of cooperation between people from different settings), and *boundary practices* (more

enduring forms of collaboration) (Akkerman & Bakker, 2011b). As previously indicated, examples of boundary crossing at this level appeared less frequently in the interviews.

Looking first at boundary interactions, one example where *domain affordances* are apparent appears in a description provided by an L2 teacher on one of the manufacturing programs. In this story, she tells how she had been approached by students who were worried about not understanding education in the vocational classroom, and therefore asked the principal to timetable her for tuition in the manufacturing hall together with the vocational teacher:

> EXCERPT FIVE (L2 teacher, Program 4)
> R:　　It was rather that I had to beg and plead. Because I don't really think that either the vocational educator or the principal understood what they had got themselves into. Or how these students learn. They didn't have specially adapted materials or books. And the teaching methods were not adapted to these students' abilities. So I had to go to the principal and say, "I need some hours." To be able to go and be there. And to learn too. Because I didn't know everything they were talking about. So first I too had to learn. I made some materials that they could work with in Swedish.
> I:　　Was it the students who first made you realize this need? Or how did you notice?
> R:　　It was the students. Time and again they came and said, "We don't understand what the teacher is saying. Can't you come and explain what he's saying?" And I was panicked. Because I don't know anything about industry, and all the tools and so forth.

As this teacher explained, her intervention led to a more permanent solution where she was able to spend about an hour a week in the vocational classroom. Even though she felt out of her depth—"*Because I don't know anything about industry, and all the tools and so forth*"—by visiting the classroom, and being present during the lessons, she was able to support the students in their learning. In this student-initiated cooperation, the presence of the L2 teacher can be understood as an example of a *domain affordance* that enables students to develop the ability to express themselves appropriately within this practice context ("*I made some materials that they could work with in Swedish*").

If the arrangement brokered by the L2 teacher seemed to lack reciprocation, examples of bi-directional collaboration are found in the other manufacturing program (Excerpt Six), and on the catering program (Excerpt Seven):

> EXCERPT SIX (L2 teacher, Program 2)
> That was how I thought that I wanted to work, to be there on the factory floor. To be able to take them aside to go through things that were going on. Like, "what did we do now?" and to work with and explain terminology. We recorded some films with the Ipads where they interviewed each other in the factory. "What are you doing?" "Can you explain how you are working?" stuff like that. Then we watched the films together in the classroom. The students see their Swedish in a totally different way. Because you might think that it sounds good, what you say, but when you see it from an outside view, then you might notice that the syntax is not correct, or, "Oh, I missed a word there" or "that was the wrong tense."
> /…/

> X did a presentation of the tools, machines, and safety. And he showed things concretely. The tools, the machines, everything. And how they worked. Parallel to this I used the whiteboard to write up the terminology. Because the students, they had their vocabulary logbooks, that they created themselves. So, at the same time as they were there, watching, and sometimes also trying things out, I wrote things on the whiteboard, and talked about different words. And then the follow-up. "Do you remember what this was?" and "How is this used." Stuff like that.
> /…/
> Because I constructed my own toolbox, I became one of the gang. I too would ask X questions "What do I do now?" and "Now it has come like this." And then the students could ask too. But they were also good at going to X and asking, "Have I done this right?" So, there was a lot of focus on the work, on the practical things. You could say perhaps that there was a great deal of focus on talking.

Here, descriptions indicate the inception of structured forms of collaboration characteristic of *boundary practices*. The L2 teacher describes how she created space in her schedule so that she could be present in the factory workshop. While this form of boundary crossing appears to mostly generate *domain affordances*, we can also note how the collaboration generates a positive climate conducive to interaction, and thus also *communication affordances*. As we saw in Excerpt Four, this teacher described how "*there was a lovely atmosphere*" when they worked with the classroom follow-up. A positive atmosphere is similarly created when the L2 teacher on the catering program carries out teaching in one of the kitchens, here too following it up the next day in the L2 classroom:

> EXCERPT SEVEN (L2 teacher, Program 5)
> They became very happy when I came to the kitchen. And also because I really made them use Swedish. I gave a word to every object. Like, "this is dishcloth" and "What are you doing now?" "I am opening the oven and putting in a roasting dish" "I am baking a cake." I forced them to use the language. They valued this. Several said "It's great when you come, because then we have to use all the words." Afterwards I do a follow-up with the photos on the projector. And I have made materials based on things they have done, and given them writing assignments to "describe what you did in the kitchen yesterday and write an account." And it was of course easier for them to summarize with help of the pictures, and all the words we had gone through.

Here too, the boundary practice of supporting workplace learning generates both *domain affordances* (*"And it was of course easier for them to summarize with help of the pictures, and all the words we had gone through"*) and *communication affordances* (*"Several said 'It's great when you come, because then we have to use all the words'"*).

Conclusion

In migration contexts, proficiency in a host country language can facilitate labor market entry and successful integration. To support these transitions, programs that combine L2 education and vocational training have been developed in several countries. While the rationale for such initiatives is that program elements are mutually enhancing, little is known about how integration is achieved, how connections between program elements can arise, or the influences that connectivity can have on participation, engagement, and L2 development.

From the research literature on vocational education and training, it appears essential that learners are provided with opportunities where they can "apply the concepts from their formal education to

interpret the reality of workplace cultures and practices", [and where they can relate] "everyday experiences to more formal bodies of knowledge" (Kersh, 2019, p. 257). A successful forging of connections between settings is regarded as crucial to learning outcomes (Billett, 2015; Engeström et al., 1995). As Bakker and Akkerman (2019) explain, "[i]f learners cannot connect what they learn in different settings, it is very likely that what they have learned in educational settings remains inert. What they have learned in an internship or regular work may not be enriched by what they gained in education or training" (p. 351).

In this article, we have presented findings from the systematic study of experiences of practitioners working on five integrated programs of L2 learning in Sweden. Using an analytical framework where boundary crossing phenomena identified by Akkerman and Bakker (2011a, 2011b) functioned as sensitizing concepts (Blumer, 1954), light has been cast on connectivity and the affordances for L2 learning that arise when, at different scale levels, boundaries are crossed. Two categories of affordances were identified. When connections were made between knowledge developed in L2 classrooms, vocational education, and workplace training, *domain affordances* could arise. These affordances could facilitate understanding of tasks, practices, and conventions associated with a particular occupational/linguistic domain. Connectivity between settings could also have the effect that L2 interactions became invested with greater meaning, increased relevance, and enhanced authenticity. Identified as *communication affordances*, this category of affordance can function to facilitate students' engagement in L2 interactions, and to strengthen their WTC.

Limitations

The study constitutes an initial attempt to examine the affordances that arise in programs that seek to integrate classroom and workplace learning. An important limitation is that findings have emerged from practitioner interviews. Additionally, we were only able to interview the workplace supervisors for three of the five programs. A further limitation is that focus was only directed to boundaries between programme components, and without attention to the affordances that can arise when boundary crossing takes place within a particular context.

Implications

In countries where language education is offered to adult migrants, it is important that policymakers are provided with evidence of contributions that integrated programs can make in facilitating L2 learning and enabling a better integration of adult migrants into the workforce. While in this regard the current study marks an important initial attempt, the limitations stemming from the methodology employed, and the context investigated (CEFR A2 and B1-level education in Sweden), highlight the need for systematic research. Connectivity in integrated programs needs to be examined using a variety of data sources, including observational data. In addition to interviews with teachers, workplace supervisors, and program participants, audio and/or video-recorded observations of practice situations where connectivity is established need to be carried out. Equally, longitudinal studies that can provide evidence of learning gains associated with integrated programs are required.

In addition to studies employing methodologies which can deliver robust findings that can provide evidence of the learning potential suggested here, it is also important that educational planners are provided with a blueprint in which the essential features and characteristics of programs that seek to integrate L2 and vocationally-focused learning are carefully explicated. As a first step in this direction, it is important that a definition of work integrated language learning is developed. In this respect, and as an initial "working definition," we propose that work integrated language learning (WILL) can be understood as "a program or other form of education that primarily targets the

development of L2 skills, where classroom and workplace-based learning are intentionally combined, and where connections between settings are actively sought."

While we believe that it is essential that funded programs of research are initiated, and that the contributions of integrated programs are systematically assessed, more immediate implications can also be drawn. In any educational program that includes workplace learning, the challenge "is to create possibilities for participation and collaboration across a diversity of sites, both within and across institutions" (Akkerman & Bakker, 2011a, p. 132). Irrespective of the design of particular programs, language teachers, vocational educators, and workplace supervisors can profit from in-service education that can support them in identifying affordances associated with work integrated learning, and in helping students to attune to the varying affordances that might arise. Given the rich literature on affordances in language learning (Aronin, 2014; Henry, 2016a; Otwinowska-Kasztelanic, 2011; van Lier, 2000), and work in the analogous field of "teacher language awareness" (Andrews, 2007; Otwinowska, 2017), training that supports practitioners in developing an awareness of affordances can play an important role in leveraging the potential associated with this particular form of language education.

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