

Does knowledge transfer occur in action research?

ABSTRACT

Knowledge transfer studies analyse channels that carry knowledge from university to industry and society. In parallel, action research has become a popular method to produce and transfer scientific knowledge at the same time. However, knowledge transfer studies rarely employ action research, and action research rarely has addressed the topic of knowledge transfer. Hence, there have been few opportunities to reflect upon the boundaries between the object of knowledge transfer studies and the knowledge transfer embodied in action research. We present a first theoretical attempt to fill this gap, which is useful to clarify the concepts at stake and draw lessons for knowledge transfer studies about the two dimensions along which knowledge transfer occurs in the communicative space, a space generated during action research.

Keywords: knowledge transfer, action research, knowledge co-creation, communicative space

1. Introduction

Knowledge transfer studies analyse channels that carry knowledge from university to industry and society. In parallel, action research has become a popular method to engage into research that involves an element of university-society knowledge transfer. However, knowledge transfer studies rarely employ action research, and action research rarely has addressed the topic of knowledge transfer. Hence, there have been few opportunities to reflect upon the boundaries between the object of knowledge transfer studies and the knowledge transfer element embodied in action research. We present a first conceptual attempt to fill this gap.¹ To this end, we briefly review the definitions and explanations of our target concepts (section 2), then we describe the overlap between both (section 3), illustrate it with examples based on an actual action research (section 4), and then conclude (section 5).

2. Back to basics

2.1. *What is knowledge transfer?*²

The concept of knowledge transfer was originally applied in the analysis of the business sector. It evokes that if one organizational unit generates knowledge, and another unit within the company gets access and uses that knowledge, knowledge transfer takes place (Tsai

¹ Unless otherwise specified, this paper focuses on *university-society* knowledge transfer rather than intra-organisational knowledge transfer or knowledge transfer between research performance sectors that do not involve universities. Notice also that we talk about *university-society* rather than *university-industry* knowledge transfer, despite the latter term being more long-standing, because the former is more comprehensive and reflects current trends to encompass university impact on firms within the wider spectrum of societal impact. However, we believe our framework applies to the case of *university-industry* knowledge transfer.

² For the sake of brevity, we skip here the delimitation of concepts related to knowledge transfer, such as knowledge spillovers/flows/diffusion/dissemination/exchange/interactions/collaboration/cooperation/sharing, access to the knowledge base, etc., and the distinction between technology and knowledge.

2001). Definitions revolve around that notion, e.g. ‘knowledge transfer in organizations is the process through which one unit (e.g., group, department, or division) is affected by the experience of another’ (Argote and Ingram 2000: 151). Knowledge transfer can also be external, i.e. between companies (Argote and Ingram 2000), so it is straightforward that the concept also applies to intersectoral relationships, covering from the whole spectrum of actors of the innovation system (Wehn and Montalvo 2018) to particular sectors, like universities and industry (Agrawal 2001). In the latter case, knowledge transfer is regarded as ‘the mechanisms by which university science moves to the economy’ (op. cit.: 285). In this sense, the label ‘knowledge transfer’ transcends academic use and has been applied in university management to name university-industry knowledge transfer offices (Pinto and Fernández-Esquinas 2018).

Although the abovementioned definition of knowledge transfer is very wide, many studies about university-industry links implicitly restrict its use to the knowledge transfer *of research results*. This way, they put the focus on the process that follows a research project and its final results, and not the process that takes place during the life of the project and its intermediate results. We will see now that action research accepts that the generation of research results and their transfer can occur at different stages of the research process, including both intermediate and final results. Hence, action research adheres to the original, wide definition of knowledge transfer.

2.2. *What is action research?*

Action research is an emergent and developmental methodology. It concerns practical issues and human flourishing, working with participants and towards knowledge in action (Bradbury 2015: 7).³

As O’Leary (2014: 168-170) points out, action research has some key elements that differentiate it from other research traditions: 1) It is grounded in real problems and real life situations and it seeks to understand these problems and implement solutions within the context. 2) It pursues action and knowledge, as enacting change is seen not as the end product of knowledge, but valued as a source of knowledge in itself. Nevertheless, knowledge production is understood as a disciplined process, ensuring credibility and rigour. 3) Action research calls for collaboration between researchers, practitioners and any other interested stakeholders. Without key stakeholders as part of the research process, outsiders are limited in their ability to build rich and subtle understanding, or implement sustainable change. 4) Action research is understood as a cyclical process that takes shape as knowledge emerges and works through a series of continuous improvements in cycles that, generally, involve some variation in observation, reflection, planning and action.

According to Kemmis and McTaggar (2005), this cyclic process can be visualized as spirals with self-reflective cycles actions such:

- Plan a change
- Act and observe the process and consequences of change
- Reflect on the processes and consequences

³ Despite the use of the word ‘participative’, AR can be participatory (PAR) or not. Engagement of individuals in the solution of a problem is enough for research to qualify as AR, but only if these individuals choose democratically a consensus solution, it becomes PAR.

Notice also that research can be participatory without being AR, e.g. if the methodology involves humans, but they are subjects of observation and not supposed to solve the possible problem that motivated the research. This occurs in many experiments, focus groups or much participant observation.

- Replan
- Act and observe the changes
- Reflect again

See Fig. 1 for a visual representation.

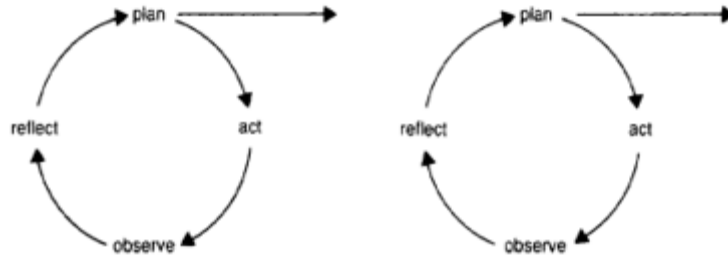


Fig. 1. Cycles of reflection and action based in McNiff and Whitehead, 2002, p. 41

Through these cycles of planning, action and reflection communicative spaces are created. ‘Communicative spaces’ are understood here as ‘social arenas for constructive dialogue and creative problem-solving among stakeholders on issues of common concern’ (Bodorkos and Pataki 2009: 314). Fig. 2 represents the idea of communicative spaces that are created through the cycles, which are taking place during AR.

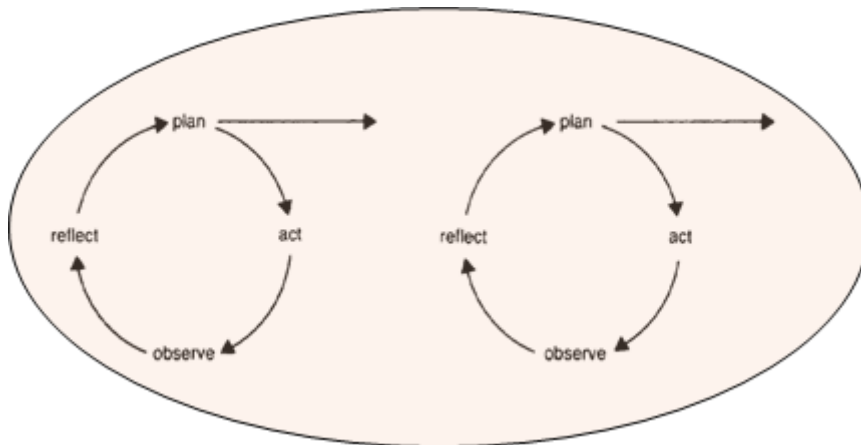


Fig. 2. Communicative spaces that are created through cycles of reflection and action

2.3. The paradigms behind knowledge transfer studies and action research

The attachment to different scientific paradigms may explain the disconnection between knowledge transfer studies and action research. Knowledge transfer studies normally rely on positivism and postpositivism, and action research on a participatory paradigm. Table 1 summarises the opposite characteristics of the items that define each set of concepts, adapted from Lincoln et al. (2011).

Table 1 Basic beliefs and paradigm positions on selected practical issues of alternative inquiry paradigms

Item	Positivism and postpositivism	Participatory
Ontology	Realism –“real” reality but apprehendable, at least only imperfectly and probabilistically apprehendable	Participative reality –subjective-objective reality, co-created by mind and given cosmos
Methodology	Experimental/manipulative; verification or falsification of hypotheses; chiefly quantitative methods, may include qualitative methods	Political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context
Knowledge accumulation	Accretion- “building blocks” adding to “edifice of knowledge”; generalizations and cause-effect linkages	In communities of inquiry embedded in communities of practice
Goodness or quality criteria	Conventional benchmarks of “rigor”: internal and external validity, reliability, and objectivity	Congruence of experiential, presentational, propositional, and practical knowing; leads to action to transform the world in the service of human flourishing
Values	Excluded –Influence denied	Included –Formative
Inquirer posture	“Disinterested scientist” as informer of decision makers, policy makers, and change agents	Primary voice manifest through aware self-reflective action; secondary voices in illuminating theory, narrative, movement, song, dance, and other presentational forms
Training	Technical and quantitative; substantive theories	Co-researchers are initiated into the inquiry process by facilitator/researcher and learn through active engagement in the process; facilitator/researcher requires emotional competence, democratic personality and skills
Action	Not the responsibility of the researcher; viewed as “advocacy” or subjectivity, and therefore a threat to validity and objectivity	Intertwined with validity; inquiry often incomplete without action on the part of participants
Control	Resides solely in researcher	Shared to varying degrees

Source: adapted from Lincoln et al. (2011).

In this sense, knowledge transfer studies usually operate under the idea that reality is beyond perception, but at least understandable through theories, and the observable phenomena may provide empirical evidence to support them. The emotionally and ethically farther the researcher stays from the studied phenomena, the greater the objectivity and rigour in the analysis. On the contrary, action research considers that reality is socially constructed, so that the definition between researchers and other social agents of the questions and the answers builds useful theoretical and practical knowledge. The incorporation of emotional and ethical aspects accepts that results depend on the context and facilitate their interpretation.

Positivist and postpositivist research is mainstream, so it is older and has more followers than action research. Some positivist and postpositivist researchers still question whether action research is scientific, in part for superficial reasons like it being new and different, in part for substantial reasons like the predominance of anecdotal evidence over literature review to build theory, the looseness of causal relationships and the scarce quantitative measurement of impact. However, under the participatory paradigm, these aspects are not so important to legitimize science as the definition of relevance with non-academic actors, the enhanced explanatory power of theories that are able to problematize and deal with complexity, and the multi-level conception of impact –aspects in which action research overcomes positivist and postpositivist research. Both the participatory paradigm and action research have built a strong scientific reputation with established academic communities and indexed scientific journals.

3. The overlap between knowledge transfer and action research

In this section we describe three possible overlaps between knowledge transfer (KT) and action research (AR), which will be illustrated with examples in section 4.

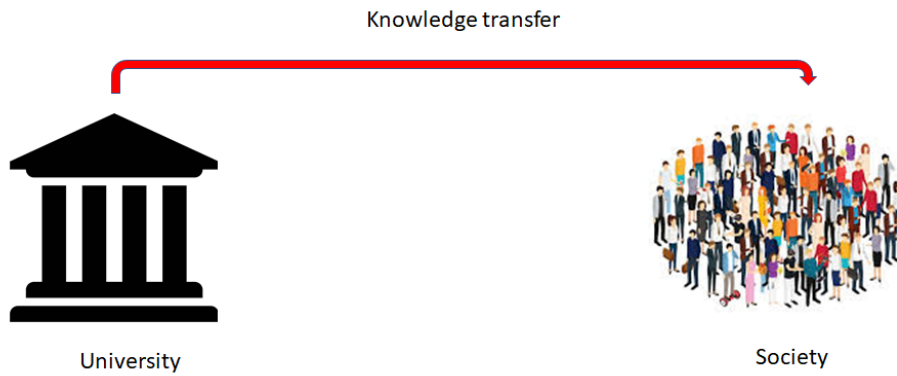


Fig. 3. AR without communicative spaces and cycles but with KT

In Fig. 3, we describe a knowledge transfer (between university and society) that happens before the AR cycles of reflection and action have started. Here, KT is unidirectional from university to society.

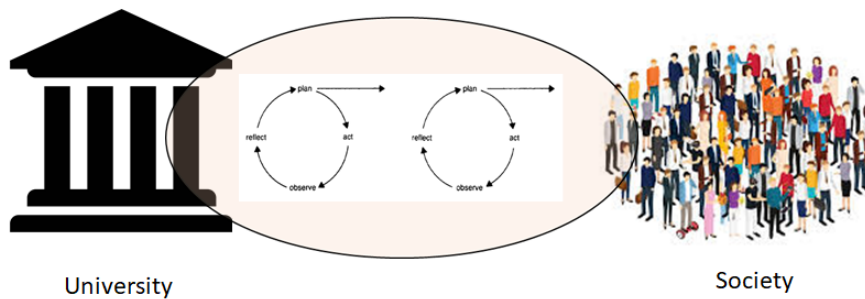


Fig. 4. AR without KT

In Fig. 4 we describe an AR in which its cycles of reflection and action, thus producing a communicative space, but not KT.

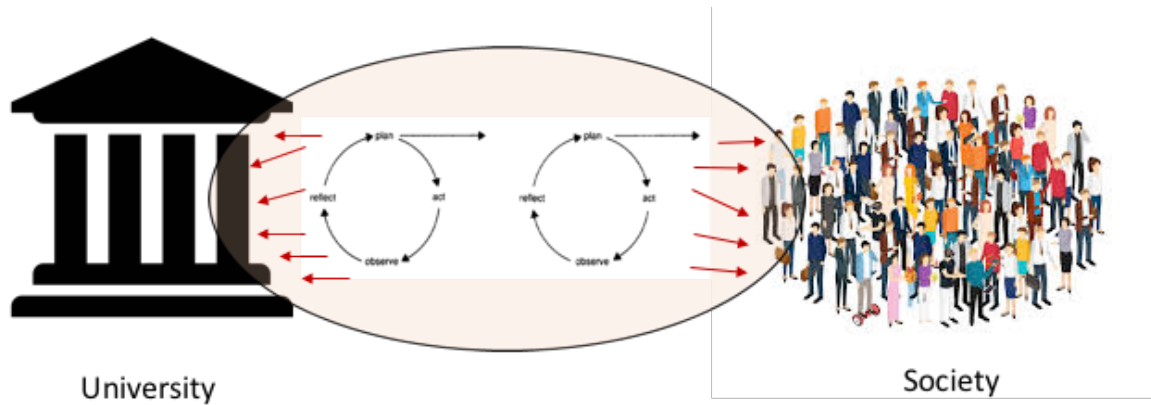


Fig. 5. AR with KT

Finally, in Fig. 5 a complete KT is happening through cycles of reflection and action. This interaction produces new knowledge both for university and society actors.

4. An illustration of the overlap

A process of AR carried out in Valencia from February 2010 to March 2011 could illustrate the different overlaps. In this process, 4 teachers of primary and secondary school, 2 university lecturers and 5 practitioners of non governmental organizations, investigated collaboratively in order to solve these two research questions: 1) What kind of educational practices and experiences contribute to the creation of global citizenship and how can be improved through collaborative spaces between different social agents? 2) How can we redefine (unpack, deconstruct, reflect) global citizenship? (Aristizábal et al. 2012).

This AR was accompanied by an external expert that came from an American university and by a local facilitator and two note keepers who helped in different participatory moments. Specifically, the AR was based in the Cooperative Inquiry methodology: it is a fully participatory process in which people engage together in cycles of action and reflection. In doing so they have an opportunity to develop their critical awareness of the theories and ideas they bring to their action in the world, and the extent to which their behaviour and experience

are congruent with these theories. Thus in the process of inquiry, both theory and practice are developed (Heron and Reason, 2006).

The model of co-operative inquiry was originally based on an extended epistemology including three kinds of knowledge: a) *experiential knowledge* is gained through direct encounter face-to-face with persons, places, or things; b) *practical knowledge* means knowing 'how to' do something, demonstrated in a skill or competence; c) *propositional knowledge* is knowledge 'about' something, expressed in statements and theories and d) *presentational knowledge* by which we first order our tacit experiential knowledge of the world into spatiotemporal patterns of imagery, and then symbolize our sense of their meaning in movement, sound, colour, shape, line, poetry. The development of presentational knowledge is an important, and often neglected, bridge between experiential knowledge and propositional knowledge (Heron and Reason, 2006).

The AR started in February 2010 and lasted until March 2011; during these 13 months, five cycles of planning-action-reflection-planning took place as shown in Table 1.

Table 1. Timeline of the AR initiative.

Month(s) and year	Phase
February 2010	1st meeting
February-April 2010	Action 1
April 2010	2nd meeting
April 2010-July 2010	Action 2
July 2010	3rd meeting
July 2010-October 2010	Action 3
October 2010	4th meeting
October 2010-November 2010	Action 4
November 2010	5th meeting
Action Research paused by decision of participants	
February 2011	6th meeting
February 2011-March 2011	Action 5
March 2011	6th meeting

Source: Sow et al. (2011).

This AR experience could be considered lengthy, but every AR is unique and depends on the availability, interest and dynamics between participants. However, at the end of the process, there were a common feeling that keeping the energy and commitment to the process during 13 months was too demanding. Although as we will see in section 4.4 different kinds of knowledge were produced.

4.1. AR without communicative spaces and cycles but with KT

An example of this exchange was the first explanation given by the American expert who presented, in a lecturing conceptual and methodological issue related with the AR. This happened previously to define and implement actions.

4.2. AR without KT

An example of this relation occurred when participants carried our actions individually. For instance reflexive writing on their own identity and its links with global citizenship; or reading texts and books on different visions of citizenship and global identities.

4.3. AR with KT

The majority of the activities performed during the AR can be considered AR with KT. We can include all the exchanges and interactions produced between participants in the “reflexive” moment of the different cycles. In those moments, participants came together to reflect on the previous action like reflexive writing and readings mentioned above. Also, AR with KT can be considered the actions with external actors: interviews conducted by researchers where teachers from Latin America gave their perspectives on the idea of global

citizenship; or conversations between participants and other teachers of a primary school cooperative. In these examples both researchers and other actors produced KT.

Because of all those interactions, this AR produced different kind of results. A group of them could be catalogued as “propositional knowledge”. A redefinition of global citizenship was agreed as follows: *Citizenships (common and multiple) are processes of construction (susceptible to being educated) of people (with their principles, values, desires, reflections, emotions). These people collectively and cooperatively share local and / or global actions in favour of achieving rights to themselves, to others and to the earth; they also want to achieve the dynamic transformation of reality, and this transformation channels new processes. These processes are cyclic, repeated* (Sow et al., 2011; Aristizábal et al, 2012).

Moreover, this AR highlighted 1) the need to position oneself in an attitude of demand and incidence, to generate active changes based on the rights and obligations of people and 2) The importance of practices, reflection and work with diverse networks.

Another important insight was the understanding of the approaches on education for human rights, gender, environmental etc. they are not a complementary part of the global citizenship definition, but they are intrinsic manifestation of education for global citizenship.

Finally, we agreed that global citizenship must be present throughout the educational space (classroom, faculty, families, in emotional education) but it also should transcend more areas of society.

Examples of *experiential knowledge* (gained through direct encounter face-to-face with persons, places, or things) are insights about the importance of attitudes (open mind, respectful, curious) to be part of an AR and about power dynamics that are always present in this kind of participatory processes. Other experiential insights originate realizing the kind of prejudices towards University or towards Non Governmental Organizations that some of primary and secondary teachers showed during the process. Another example of experiential

knowledge was produced during one of the encounters between university and primary school students. It was remarkable observing how primary school students express themselves using images, poetry and songs, while inasmuch as we progress in the educational ladder, these different forms of expression are gradually disappearing.

With regard to *practical knowledge*, the AR gave to the participants insights on how to deal with conflicts or with power imbalances during the process.

Lastly, this AR generated different example of *presentational knowledge* as figure 6 shows. Those drawings were produced during the different encounters which finalised every circle and prepared for the next action. As Heron and Reason say, presentational knowledge is a bridge between experiential and propositional knowledge (Heron and Reason, 2006).

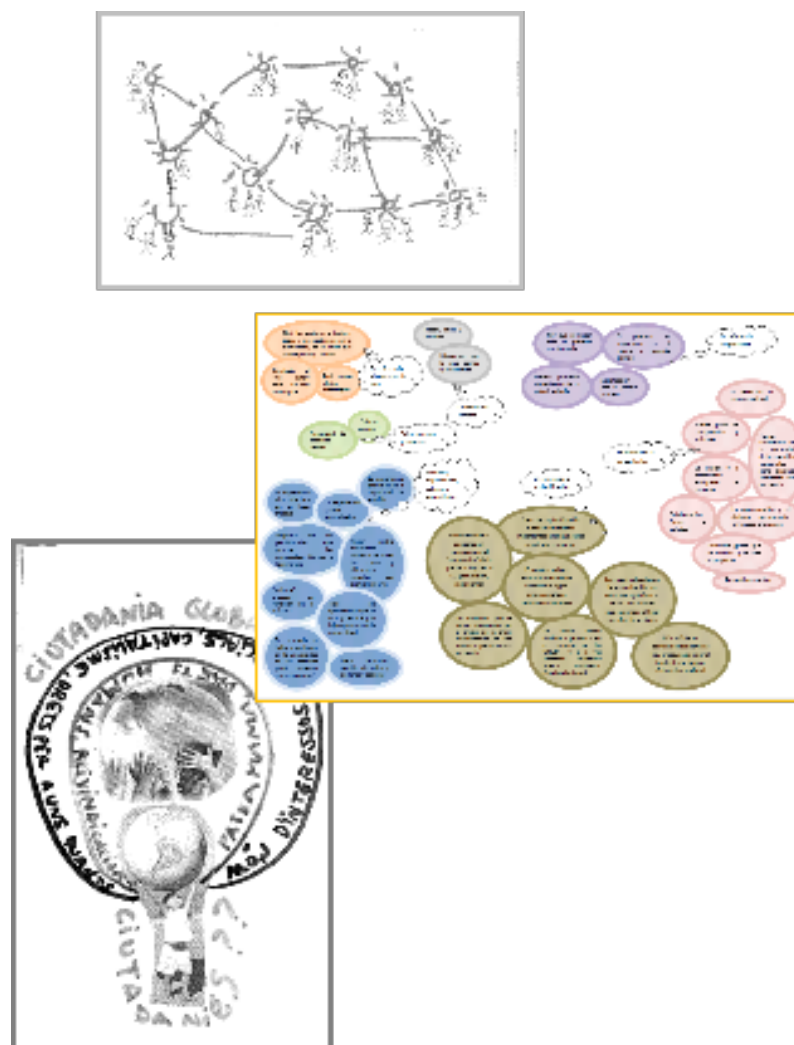


Fig. 6. Examples of presentational knowledge. Source: Sow et al. (2011).

5. Conclusion

Social researchers increasingly use the methodology of action research. This involves the creation of a space in common for university and non-university actors, where they develop knowledge in common, through bilateral knowledge transfer between them. Hence, are knowledge transfer and action research the same? A trivial answer is ‘No’, because the former is an activity and the latter is a methodology. However, the overlap is so large that we could wonder whether the difference is merely formal, because, intuitively, one hardly occurs without the other. In this paper, we have tried to deepen into the differences between both, and establish conceptual categories to delineate their borders. We hope this way we have clarified their deeper meaning.

Our research opens the floor for discussion of other conceptual questions, e.g. is participatory action research a knowledge transfer mechanism? I.e. should the typical study on knowledge transfer mechanism list participatory action research among joint research, R&D contracts, spin-off companies, patent licensing, etc.? We do not think so, because participatory action research is transversal to many of those mechanisms, but a more precise conceptualisation could follow.

At an epistemological level, let us recall that use of participatory action research is mostly a natural consequence of researchers engaging into a participatory research paradigm. This might be why analysts of knowledge transfer, who predominantly follow other, more orthodox, paradigms, have not used participatory action research. Going one step further, we could ask, what if knowledge transfer studies embraced participatory action research? Researchers in the field would generate knowledge transfer at the same time that they reflect upon it. This would increase coherence between the subject and the object of the study –a non-existing opportunity in other fields, which professionals could consider.

Finally, our approach emphasises that knowledge transfer during action research is mainly bilateral, rendering the term ‘transfer’ inappropriate for its reductionism. ‘Knowledge exchange’ could better depict the interactions at stake. This may be true of many other interactions even without action research.

From the other side, knowledge transfer studies can be useful for action research in order to be more rigorous when analyzing the different exchanges of knowledge produced and their relevance. As described above, the type of knowledge generated during action research can be propositional, practical, experiential and presentational. The first two can be considered a more conventional way of knowledge production. But both experiential and propositional knowledge belong to a different and novel category of knowledge which is confined to the realm of action research.

Moreover, knowledge transfer studies could be useful observing the production of presentational and experiential knowledge through interaction between different actors. They could also analyze the relationships between the production of different types of knowledge and the type of interactions that occur. For example, referring to the example of AR presented in this paper, we can know in what spaces a presentational knowledge has been produced in the form of images (see figure 6). But we do not know how and when this presentational knowledge becomes propositional and what kind of interactions and between who are key to it.

The second contribution of knowledge transfer studies to action research could be in relation to the criteria of training, action and control that characterize action research as it is presented in table 1. Knowledge transfer studies could be more precise and clarify when and how, through knowledge transfer, there is a better engagement in action research and what competences and skills are key to that. Also, it could examine what type of interactions and

production of knowledge are more related to the action and the degree of control that the participants may have.

We hope that everything described above could illustrate the potentialities that the intersection between knowledge transfer and action research communities can produce, both theoretically and practically. Undoubtedly, a rich avenue for future developments.

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