The Relevance of Spatial Play to First and Second Language Acquisition

A literature review, with implications for FLA & SLA pedagogy and research.

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Abstract

Spatial play is vitally important to various disciplines in developing spatial intelligence, and awareness of the formal languages used to address space. Spatial language ability is a critical aspect of spatial intelligence and play; but little research attention has been paid towards its L1 or L2 acquisition in such contexts.

After reviewing relevant papers, this review identifies a significant shortfall in the research literature regarding spatial play in language acquisition, and suggests various avenues for further research. The nature of spatial play should be clarified, and its role in facilitating language acquisition addressed. Multi-sensory spatial play helps students learn experientially and linguistically, and acquisition of new language should be related to existent spatial language ability. Discovery during spatial play may helpfully destabilize spatial interlanguage, inhibit fossilization and allow development. Collaborative spatial play stimulates spatial language play and thus language acquisition. Architectural design philosophy may contribute to spatial language acquisition theory.

1. Introduction

Spatial play may be defined as the exploration and manipulation of spatial configurations for creative pleasure, which typically generates insights into spatial relationships. Spatial play is of vital importance to students and professionals in a number of disciplines that concern themselves with the design, construction, pragmatic use and aesthetic appreciation of spatial composition, notably architecture, urban design, engineering, and the plastic, performing, and fine arts. The role of spatial play in developing spatial intelligence is also important in developing awareness of the formal languages that are used to compose, make and appreciate objects and spaces in relation to one another and their spatio-environmental context. For example, architecture is largely taught through studio programs, whereby students are encouraged to explore spatial configurations to solve given problems. They then submit design solutions through visual and verbal presentations, which include graphic images, three-dimensional models, and textural descriptions.

Spatial language ability is a critical aspect of spatial intelligence and spatial play. It enables communication of intention and feedback in conceiving, developing, presenting, building and critically responding to compositions. For example, internal dialogues typically occur within the mind of the individual student engaged in contemplative exploration and imaginative design. She may externalize these in notes that are integral parts of graphic explorations presented as sketch designs. External dialogues occur between student and student, student and teacher, designer and client, designer and builder, designer and inhabitant/user/audience, and designer and critic. However, little research appears to have been conducted into the teaching and learning of spatial language in these situations, whether within the context of first or second language acquisition. While it is intuitively apparent that spatial play should be integrally connected with spatial language acquisition, research literature that might support this relationship appears remarkably lacking.

Boote and Beile [1] suggest that a literature review of a topic about which little is known requires a broadening of the search into analogous research in other areas. This review seeks to redress the shortfall identified in the literature, by considering four studies that are loosely germane to the topic of spatial play in relation to first and second language acquisition. In *Second Language Acquisition and Children with Visual and Hearing Impairment,* Muñoz [2] reviews the problems children with visual and auditory impairment may face with SLA, and offers suggestions for overcoming these problems. In particular, her suggestion of the use of hands-on multi-sensory activities to help children learn language experientially as well as linguistically provides the starting point and touchstone for this review.

Exploring L2 Language Play as an Aid to SLL: A Case Study of Humour in NS-NNS Interaction, by Bell [3], and *Language Play, A Collaborative Resource in Children's L2,* by Cekaite and Aronsson [4] are two companion papers which focus on humorous language play in L2 learning for young adults and for children respectively. These papers contribute findings that may be generalized from humorous language play to spatial language play associated with exploratory spatial play. *Teaching CAD with Language Learning Methods,* by Cheng [5] discusses how pedagogical methods from language learning can be used with university students in teaching the design communication skills involved in computer-aided design. The material is more closely related to spatial play, and can be generalized to applying Design Education pedagogy to first and second language acquisition, particularly in regard to spatial language acquisition.

The American Psychological Association [6] suggests that the author of a review article should define and clarify the problem, summarise previous research, identify relations, contradictions, gaps and inconsistencies in the literature, and suggest the next steps in solving the problem. Boote and Beile [7] consider that a proper literature review is a precondition for doing substantive, thorough and sophisticated research, and identify generativity as an important factor. Bearing these factors in mind, I propose to deal with the four studies in the order shown above, while also identifying the implications for future research throughout.

2. Second Language Acquisition and Children with Visual and Hearing Impairment

Muñoz [8] notes in regard to FLA that children's brains are designed to help them learn language. The ability to think about the world and explore it with the senses underlies language development. She then addresses the SLA of ESL children who have learned an L1 at home. Classroom placement has an impact on FLA and SLA. Children use their existing L1 proficiency as a natural foundation to learn English. But SLA generally occurs through classroom activities where specific targeted English skills are taught, rather than through the hands-on experiences typical of FLA. They are required to quickly understand and use English in highly abstract and decontextualized academic activities.

Auditory and visual impairments and/or deafness and blindness interfere with SLA, even though FLA generally may have developed normally. These differences come from the different methods of L1 and L2 acquisition. Classroom SLA is primarily visual and auditory. Children usually have neither access to compensatory sensory information, nor time to learn complex language gradually. Muñoz then offers suggestions to encourage children's SLA.

Muñoz provides a concise summary of theory and research findings, but one weakened by its general nature and lack of citations. It does not state where information is derived from, except in the most general sense of providing a brief list of resources. No abstract is given, and the initial paragraph, though insightful, actually addresses FLA although it is not included in the title of the paper. There is little relating of content to other research, except in the general sense of presuming a justifiable authoritative knowledge of the field. No specific studies are referred to, nor materials or procedures discussed. There is no statistical analysis. The resource list is abbreviated, lacking publisher and place of publication.

Despite these procedural shortcomings, the article is succinct and relevant. It shows good sense, illuminates some of the likely problems with SLA for disadvantaged children, and offers constructive suggestions for overcoming them. The paper may perhaps better have been entitled, *"Problems and Possible Solutions for SLA of Children with Visual and Hearing Impairments."* Her research could be extended to determining ways in which visual and hearing impairments may interfere with the development of spatial play, spatial intelligence and spatial language acquisition, and with possible solutions to those interrelated problems.

Of particular relevance to this review are her suggestions to teach children through hands-on multi-sensory activities to help them learn experientially as well as linguistically, and to help children understand the relations between new concepts they are being taught and their familiar experiences. I suggest these valuable suggestions are generalizable to L1 and L2 language acquisition for both children and adults, and of relevance to using spatial play to develop spatial language. Cognitive relationships can be externalized through the process of spatial play. These can then be confronted, appreciated and manipulated. In so doing, new relationships may be discovered and formulated. These in turn may aid in developing spatial intelligence and in facilitating spatial language acquisition.

The next two papers are more specific, and address notions of SLA language play. They use 'play' specifically in regard to the use of humor in language,

as opposed to the exploratory playful activity in space that is more relevant to the topic of this review. The notion however of language play destabilizing the IL system allowing growth to continue is of particular relevance. Both papers were recently published as consecutive articles in *Applied Linguistics.* Unlike Muñoz, both authors provide a clear abstract, situate their research within a framework of existing research, identify their subjects, describe their research methods, and follow APA style with rigor. Of the two, I found Bell rather more approachable.

3. Exploring L2 Language Play as an Aid to SLL: A Case Study of Humor in NS-NNS Interaction

Bell [9] addresses patterns of interaction arising during humorous language play between Speakers and Non-Native Speakers, as the use of language for fun and amusement, in contrast with the notion of rehearsal used by other L2 researchers. She explores how language play might help SLA. Bell clearly defines humorous language play, and succinctly describes her methodology. The data is taken from a larger study of highly advanced NSSs of English interacting with native English speakers, conducted over a period of 1 to 2 years. Three young women participants are individually described. Bell explains how she identified humorous language play and gives examples of L2 language play. She attends to Form/Meaning. She then considers destabilization and vocabulary learning, discusses the various roles for humorous language play that were evident, and suggests future research needs to determine more precisely just what language play could actually contribute to SLA.

In my opinion, Bell does not give sufficient regard to the observer effect, though she does acknowledge she had little control over data gathering [10]. She explains to the participants that she wants to record their use of humor and provides them with tape-recorders, to tape their conversations with NSs whenever convenient and appropriate. Taping was also at the discretion of interlocutors who gave verbal permission to be taped (see also her Note 1, p. 215). Clearly, this process would affect the data. Both participants and their interlocutors would be self-conscious about their use of humor, and the obtaining of verbal permission for recording and the act of initiating the recording would be expected to affect the situation. She then arranged meetings with each participant for playback interviews of sections about which she had specific questions or hypotheses, to check the validity of her perceptions and to understand the participant's understanding of the interactions. These playback interviews would reinforce this self-consciousness on the part of the participants, and would likely affect future interactions and recordings. Bell however does impress as a conscientious and skillful researcher.

Bell provides the valuable observation that the use of language humor may destabilize the IL system, thus preventing fossilization and allowing for greater linguistic development. This is generalizable to spatial play, which although for spatial exploration rather than language humor, may generate experiences and insights that tend to destabilize spatial interlanguage, thus preventing its fossilization and allowing for greater L2 spatial language development.

Of significance also is the observation that *"IL development occurs through the push and pull of 'more conservative forces demanding accuracy [that are] counter balanced with more creative forces demanding innovation' (Tarone 2000:49)",* quoted in Bell [11]. Spatial language is critical in comprehending and expressing the very real constraints space imposes, and in enabling creativity in conceiving, expressing and appreciating design solutions which may be prompted by discoveries made during spatial play.

Bell observes that when acquiring new meanings from context it is easier to learn a new word for a familiar concept than one for a new concept. This echoes the suggestion Muñoz makes [12], of helping children understand the relations between new concepts that are being taught and familiar experiences. Both ideas relate to the use of building new spatial intelligence and spatial language in relation to existing spatial intelligence and spatial language, whether within the same language system or by transference from L1 to L2.

4. Language Play, A Collaborative Resource in Children's L2

Cekaite and Aronsson [13] address multiparty conversation of children with limited L2 proficiency in a Swedish immersion classroom, seeking to understand the relationship between language play and language acquisition. Inspired by the language socialization paradigm, they focus on SLA as a social and situated phenomenon. The subjects were nine children in an immersion classroom for refugees and immigrant children aged 7-10 years in a Swedish school. The children spoke Arabic, Thai and Kurdish.

Spontaneous contributions were encouraged, peer group talk tolerated, and educational games initiated by the teachers. On- and off-task interactions were video-recorded throughout the school year. The analytic units of study were language play sequences. Regard was given to the participants' own orientations towards humor in identifying joking events. A playful stance towards formal aspects of language was found to be an integral part of classroom discourse. Most language play involved rudimentary forms of joking, and exploited incongruities and rule distortions. Language was played with in many ways. Language play was shown to be a collaborative affair, frequently employing form-focused language in spontaneous peer talk. The authors do not make clear how videotaping was conducted, how intrusive it was, and who recorded it - were the teachers recording, were others involved, or were hidden cameras used? Like Bell, the criticism may be made of the observer effect not being properly allowed for. Children respond differently when they are aware they are being filmed.

Although an English NS made translations, and efforts were made to preserve the original style of speaking, the translation of the sequences into English makes this study problematic. To properly identify humorous cross-linguistic plays would require NS fluency in each of the children's native languages as well as in Swedish and in Arabic. The danger of subjective interpretation of humorous interactions is not adequately addressed (in comparison, Bell [14] does acknowledge her own potential bias). Further, the problem of translating humor cross-language and cross-culture is minimized. Otherwise, this study does appear rigorous, and offers an intriguing insight into children's collaborative L2 language play.

Taking into account these various factors, I suggest researchers who address spatial play and spatial language acquisition require a sophisticated comprehension of spatial design and criticism. They should be fluent in spatial language ability, knowledgeable about spatial language acquisition, have a high degree of spatial intelligence, and be skillful and experienced at spatial play. There are also difficulties in properly appreciating aspects of spatial play and spatial language acquisition in a cross-cultural context, with particular implications for L2 spatial language acquisition.

Like Muñoz, Cekaite and Aronsson observe that attention is not something that can be taken for granted in a busy classroom. Whereas Muñoz warns that disabled children may get left behind, Cekaite and Aronsson note that children may use humor to secure the attention of their peers.

Both Bell, and Cekaite and Aronsson, study small groups of L2 learners in the L2 culture, and generalize on the basis of their findings. In both studies difficulties are identified in determining humorous play, and using the participants' own responses found helpful. However, unlike Bell, Cekaite and Aronsson videotape their subjects, which allows more comprehensive analysis. Further, they are situated within an immersion classroom in a formal teaching environment, whereas Bell's students are casually recorded in informal encounters outside the classroom. Bell's adult students record their own interactions, and choose when to record, whilst Cekaite and Aronsson's child students are recorded by unknown others, and presumably have little discretion over recording.

Cekaite and Aronsson found that the language used is not individual, but a multiparty performance in collaborative aesthetics. An implication is that collaborative spatial play may enable spatial language play, and thus contribute to spatial language acquisition. Students with limited L2 proficiency would likely employ form-focused spatial language play in spontaneous spatial play and associated peer conversations, where the forms attended to would be either spatial or linguistic or both.

Play with nonsense language is considered by Cekaite and Aronsson to be an aesthetic and social resource in L2 interactions, and their observation that classroom activities are exploited as resources for certain types of language play events may be generalized to recommendations for spatial activities to develop certain kinds of spatial language.

From here it is somewhat of a long reach to Cheng [15]. Her paper lies somewhere between the generality shown in Muñoz and the specificity shown in Bell, and in Cekaite and Aronsson. Cheng discusses the similarities between CAD teaching and language teaching, and the application of applied linguistics to digital design education.

5. Teaching CAD with Language Learning Methods

Cheng [16] recommends established language learning techniques be applied to the emergent discipline of learning CAD. She uses digital design and CAD interchangeably to mean using computer technology to explore and express ideas. Graphics and words are both vehicles for communication, and both require framing ideas in new ways. Expressive skills are critically important because of the architect's role as negotiator. Architects play a pivotal role in conveying and interpreting information, and the ability

to communicate ideas through digital media has become an essential part of architectural education.

Linguistic structure, communication and context are areas that could be transferred to CAD. Language acquisition and architectural education both require the student to understand how to use elements to build syntactically correct and semantically accurate constructions. Expression depends upon mastery of syntax and the capacity to construct narratives of different degrees of complexity. Different kinds of syntax must be mastered. Clear communication creates better learning environments, and collaborative networks are important for interaction.

Teaching novices CAD analogues children's FLA, and teaching novices traditional and digital media together analogues bilingual/multilingual immersion. Teaching CAD to traditionally trained designers analogues adult SLA, where previous native language skills guide foreign language learning. Curricula focusing on digital expression can be structured with the concepts and methods for gaining natural language fluency, where communicative competence involves linguistic, pragmatic, strategic, and fluency considerations. In the digital classroom, people work with people. Representing design media as primarily communication media is synergetic, and spurs new techniques for autonomous and collaborative learning. Teaching awareness of the learning process is a positive agent for change.

Cheng covers a broad canvas, but draws on ample case studies and experience, and provides an insightful exercise in Applied Linguistics. The text is marred by poor editing, but may also reflect Cheng's non-native English speaking background. The material is a little dated, given that both fields have developed rapidly. There are helpful diagrams, tables and a number of quite impressive illustrations of student work. In general the subjects are Cheng's architectural students, but of course the nature of the paper precludes rigorous research methods. This limitation is characteristic of research into design education, where a quantitative analytic approach is unlikely to do justice to the field, and where an ethnographic approach using case studies is more suited.

I question her emphasis on visual education. Three-dimensional spatial composition (though represented through two-dimensional means) is generally considered to be of more significance to architectural design. The illustrations Cheng provides do however include sophisticated three-dimensional configurations.

Noting that computer media skills should not be taught in isolation, and that digital design learning should be seen as a complex process requiring understanding of architectural order, visual judgment and technical methods, Cheng like Muñoz recommends multi-sensory activities. Cheng, Muñoz, and Bell all advise relating the acquiring of new meanings to familiar experiences. Spatial language also should not be taught in isolation, nor with disregard to what is already learned, but would benefit from being taught in conjunction with the use of a rich variety of playful spatial experiences, which draw on both the known and the new. There is ample scope here for further research.

The emphasis on interaction and collaboration to stimulate creative response that Cheng places mirrors the identification Cekaite and Aronsson make of collaboration being an important element of language play. Collaborative spatial play may facilitate special language acquisition - for example the complex spatial language and activity involved in traditional children's games. In that language is a social activity, emphasis might be given to group projects that attempt to solve spatial challenges, where the coordinated use of appropriate language and spatial activity is required to achieve the task. There will however always be the need for contemplative spatial play and the associated development of inner dialogue, as the solitary designer wrestles with the design problem.

Cheng compares the pedagogies of digital design and applied linguistics, and focuses on the application of applied linguistic pedagogy to digital design education. This suggests the converse application would also be valuable. Design education has a long history, and the development of spatial intelligence has long been of concern to architectural educators.

6. Conclusion

This review has identified a shortfall in the research literature regarding the relation of spatial play to first and second language acquisition, and sought to explore the possibilities for future research by delineating the area and suggesting various avenues for experimental enquiry. The nature of spatial play should be clarified. Spatial language acquisition is of particular importance to design pedagogy for professionals involved in a number of disciplines that involve spatial composition, notably architecture. It is suggested that the role of spatial play in facilitating the acquisition of first and second spatial language is significant and should be addressed in future research.

Multi-sensory spatial play will help students learn experientially as well as linguistically. New spatial language acquisition would benefit from being related

to existent spatial language ability. Of particular relevance, spatial play may through discovery tend to destabilize spatial interlanguage, thus inhibiting fossilization and allowing for development.

Researchers into spatial play and spatial language acquisition should be skillful at spatial play, fluent in spatial language, and knowledgeable about and sensitive to cross-cultural and cross-linguistic variation. Collaborative spatial play would be useful in stimulating spatial language play, in order to aid spatial language acquisition. Specific types of play may be suited to the acquisition and reinforcement of specific spatial language. Finally, architectural and artistic/aesthetic design philosophy and the associated research literature may usefully contribute to the field of spatial language acquisition.

References

References marked with an asterisk indicate studies included in the literature review.

[1] Boote, D. N. and P. Beile, Scholars before researchers: On the centrality of the dissertation literature review in research preparation, *Educational Researcher, 34*(6), 2005, pp. 3-15.

[2]*Muñoz, M. L., *Second language acquisition and children with visual and hearing impairment,* 2000, retrieved September 1, 2005 from http://www.tsbvi.edu/Outreach/seehear/spring00/secondlanguage.htm

[3]*Bell, N. D., Exploring L2 language play as an aid to SLL: A case study of humour in NS-NNS interaction, *Applied Linguistics, 26*(2), 2005, pp. 192-218.

[4]*Cekaite, A. and K. Aronsson, Language play, a collaborative resource in children's L2, *Applied Linguistics, 26*(2), 2005, pp. 169-191.

[5]*Cheng, N. Y.-W., Teaching CAD with language learning methods, in J.P. Jordan, B. Mehnert and A. Harfmann (Eds.), *Proceedings of the Association for Computer Aided Design in Architecture (ACADIA): Representation and design,* ACADIA, Cincinnati, Ohio, 1997.

[6] American Psychological Association, *Publication manual of the American Psychological Association (5th ed.),* Author, Washington, D.C., 2001, p.7.

[7] Boote, D. N. and P. Beile, Scholars before researchers: On the centrality of the dissertation literature review in research preparation, op. cit, p. 3.

[8] Muñoz, M. L., *Second language acquisition and children with visual and hearing impairment,* op. cit.

[9] Bell, N. D., Exploring L2 language play as an aid to SLL: A case study of humour in NS-NNS interaction, op. cit.

[10] Bell, N. D., Exploring L2 language play as an aid to SLL: A case study of humour in NS-NNS interaction, op. cit., pp. 196-7

[11] Bell, N. D., Exploring L2 language play as an aid to SLL: A case study of humour in NS-NNS interaction, op. cit., p. 209.

[12] Muñoz, M. L., *Second language acquisition and children with visual and hearing impairment*, op. cit.

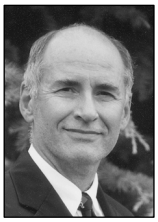
[13] Cekaite, A. and K. Aronsson, Language play, a collaborative resource in children's L2, op. cit.

[14] Bell, N. D., Exploring L2 language play as an aid to SLL: A case study of humour in NS-NNS interaction, op. cit., p. 199.

[15] Cheng, N. Y.-W., Teaching CAD with language learning methods, op. cit.

[16] Cheng, N. Y.-W., Teaching CAD with language learning methods, op. cit.

Author



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