Investigating Language Learner Beliefs Using the Lego Serious Play Method

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1. Introduction

The Lego Serious Play (LSP) Method is a "thinking, communication, and problemsolving approach" (Kristiansen and Rasmussen, 2014) that involves the systematic use of Lego bricks to solve complex problems and promote teamwork. It was originally created for use in business management and is endorsed as a solution to dull, unproductive meetings. The method's founders claim that LSP can help managers achieve three key goals: (1) increasing employee participation; (2) unlocking new knowledge; and (3) breaking habitual thinking. While these goals are attractive to company leaders, they can also be aligned with the goals of researchers in the social sciences, particularly those in Applied Linguistics, who wish to explore individual beliefs and thinking. I have chosen to adopt the LSP method to study a specific area of Applied Linguistics, namely, language learner beliefs. Using LSP as a research method seems promising as it has the potential to increase respondent participation and to tap into the knowledge and ideas of language learners. It could also be useful due to its strong focus on the individual, the potential benefits of a shared system of knowledge, and because LSP would require participants to express their views and experiences of language learning. Therefore, my research question for this study is: How can Lego Serious Play (LSP) contribute to understanding more about learners' beliefs and experiences with German language education? Because Lego Serious Play has not been applied to language education before, a concrete answer to my research question is difficult to predict in a single statement. I am interested in exploring the potential Lego Serious Play can offer for eliciting students' beliefs about learning German. Therefore, I have not developed a definitive hypothesis, which is limited to being proven right or wrong, but have decided to leave this question open for exploration.

Although the study of learner beliefs is still relatively young, the field has changed considerably since it first came to light. Researchers have been divided on defining the nature of beliefs, even disputing their usefulness (Riley, 1997; Barkhuizen, 1998; Barcelos, 2006), and have formed several approaches to studying them, as outlined in the following section. Methodologically, beliefs have also proven difficult to study, and as Zhong stated, apart from a handful of studies, "empirical studies investigating the nature of learner beliefs are surprisingly fewer in SLA" (Zhong, 2015; p 42). Many researchers have opted to use multiple methods of data collection in their studies, for example Aragao (2011), Mercer (2011), Wan et al (2011), Villarreal Suarez et al (2016). However, the use of so many different mixed

methods makes recent empirical studies of learner beliefs difficult to compare. By employing a method like LSP, which by nature results in both visual and oral data, it is hoped that studies of learner beliefs may be more easily considered in terms of one another. I begin this investigation by considering the theoretical context, followed by a brief outline of the history of the study of individual learner beliefs.

2. Context

2.1 Lego Serious Play

The LSP method was introduced in the book "Building a Better Business with Lego Serious Play" by Kristiansen and Rasmussen in 2014, but it has been developed over the course of about 15 years. The method's founders were looking for a way to create more innovative and productive meetings in their workplace, one in which all members were willing to contribute, and complex problems could be solved by accessing everyone's knowledge potential. Their solution was Lego Serious Play, the systematic process which involves building with Lego blocks to share ideas. According to the authors, the classic Lego brick is the perfect building material for this kind of work; it allows the user to create physical models of both the tangible and intangible world, with the added benefit that it may be easily disassembled and reconstructed. Although it seems simple, the value of using LSP lies in the fact that there is seemingly no limit to what participants can build. For instance, just eight classic Lego bricks can be combined in a total of 915,103,765 different ways (Kristiansen and Rasmussen, 2014; p. 27).

LSP was designed to be led by a facilitator in meetings or workshops during which everybody present takes part. The method itself is made up of what is referred to as a core process and seven application techniques (Kristiansen and Rasmussen, 2014). The core process consists of four parts: (1) posing the question, (2) construction, (3) sharing, and (4) reflection. It is important to note that the role of the facilitator is not to convey his or her own knowledge to the participants by means of the LSP method; it is not a teaching tool. Rather, participants are meant to discover their own ideas and to learn to see things from different perspectives. As a rule, participants must be given sufficient time to explain the story behind his or her model as each model is unique to the individual. It is therefore important that each person's story be accepted as truth by both the facilitator and the other participants.

The concept of play is fundamental to LSP, but it is important to keep in mind that LSP in action requires direction from the facilitator. The authors explain that play of all kinds is not frivolous and that children's play has "some sort of developmental purpose" (Kristiansen and Rasmussen, 2014; p. 39). However, they emphasize the utilitarian nature of what they call "serious play," or, "play with an explicit purpose." Participants are encouraged to open their imaginations, but should not lose sight of the fact that they are also applying their imaginations to a real issue or task.

In explaining the origins of LSP, the founders have referred to theories about the link between memory and interaction with the physical world. For example, the theory of constructivism, coined by the developmental psychologist Jean Piaget, concerns how we acquire and store knowledge (see, for example Piaget, 1970; Furth, 1969). According to Piaget, children, or anyone learning something for the first time, do not just acquire knowledge in little pieces. Rather, they "use their experience in the world to construct coherent, robust frameworks called 'knowledge structures'" (Kristiansen and Rasmussen, 2014; p. 81). Similarly, the theory of constructionism was built on constructivism by Seymour Papert (Papert and Harel, 1991) and is more closely associated with learning by doing: put simply, "[w]hen you build in the world, you build in your mind" (Kristiansen and Rasmussen, 2014; p. 82). These theories of learning support the use of LSP for eliciting the beliefs of language learners, as this may also aid learners in deepening their understandings of their own attitudes towards learning and the origins of their beliefs. The problem-solving and strategizing approach Lego Serious Play has been proven to create allows for more productive and innovative meetings for the businesses that employ it. Before describing how I will use LSP for understanding the individual beliefs of language learners, I will explain how learner beliefs have been investigated in previous research.

2.2 The Study of Learner Beliefs in SLA

Interest in the beliefs of language learners is relatively new. Most of the pioneering research in this area was published in the 1980s and 90s (for example Horwitz, 1985; Wenden, 1986; Kalaja 1995). The interest in individual language learners, however, had already begun in the mid- to late-1970s with studies of the 'Good Language Learner' (GLL). This notion was based on guestions such as "what makes good language learners tick? What do they do that poor learners don't do?" (Naiman, 1996). The idea that a theoretically perfect language learner exists was first established in studies by Stern (1975) and Rubin (1975), in which the attributes of a model 'good' learner were identified. The GLL literature had a strong focus on strategy use, for example, "the good language learner is a willing and accurate guesser" and "the good language learner has a strong drive to communicate, or to learn from communication" (Rubin, 1975). Scholars believed that these strategies and behaviours could simply be taught to less successful learners; however, this assumption turned out to be problematic. The classification of language learners as either 'good' or 'poor' is not only ambiguous, but also does not account for individual differences. Moreover, Griffiths (2015) has called the ability to teach strategies into question, and Porte (1988) acknowledged that it may not be enough to simply have poor learners adopt behaviours from good learners, but that the focus should be on helping 'poor' students to refine their own current strategies to make them more successful. This suggests that it may be necessary to search beyond strategy use as the best way to teach struggling learners. The notion of the GLL has ultimately become outdated since its genesis in the 1970s and has been replaced by studies of learner beliefs, a field which is used to study what beliefs, attitudes, and opinions individual language learners or teachers have about their own learning.

The beliefs of language learners are of particular interest to researchers and teachers who aim to understand more about learner anxiety or autonomy, and to close gaps between teacher and student views. Learners' beliefs about their own language learning is a vital component in the study of Second Language Acquisition (SLA), but the study of these beliefs has been considered "messy" due to their paradoxical nature (Barcelos, 2006; p 7), and some scholars have suggested that learners' understandings of language learning are "wrong" or less valuable than scientific theories (Barcelos, 2006). However, it cannot be discounted that learners' beliefs are real to them and influence their success and their individual progress in acquiring a second language. Scholars such as Riley (1997) and Barkhuizen (1998) have even criticized teachers and researchers for not taking learners' beliefs into account. Since the early interest in individual learner beliefs, several approaches to studying them have been developed.

Most prominent in the literature about learner beliefs are the three approaches to studying beliefs described by Barcelos (2006): the normative approach, the metacognitive approach, and the contextual approach. The normative approach generally sees students' beliefs as preconceived notions, myths, or misconceptions; they are considered stable, cognitive entities contained in the minds of learners which indicate their future behaviours and successes. Likert-scale questionnaires are a commonly used methodology under this approach, for example, the Beliefs About Language Learning Inventory (BALLI) developed by Horwitz (1985). The use of a questionnaire such as the BALLI is beneficial due to its ease of distribution and administration to large participant groups, as well as its convenience for use over different time periods. However, learners' responses may be limited as they are unable to express their beliefs in ways that are not listed on a questionnaire.

The second approach to studying beliefs is the metacognitive approach, which was primarily developed by Wenden (1986, 1987). It takes beliefs to be synonymous with metacognitive knowledge, or the knowledge that learners have about language learning. According to the metacognitive approach, beliefs are also defined as unchanging cognitive entities that may sometimes be incorrect. Frequently used methodologies under the metacognitive approach are semi-structured interviews and learners' self-reports, which are analyzed through content analysis. These methods are useful because students can use their own words to describe their beliefs, however, the fact that beliefs are inferred solely from students' statements can be considered a disadvantage. Moreover, the metacognitive approach does not consider the role of contextual factors.

The third approach to studying beliefs is the contextual approach, which can be simply summarized as "combining different methods to interpret students' beliefs in their contexts" (Barcelos, 2006; p. 20). This has become most popular in recent research (e.g., Aragao, 2011; De Costa, 2011; Wan et al., 2011; Zhong, 2015; Villarreal Suarez et al., 2016). Within a contextual approach, the nature of language learners' beliefs is not so strictly defined. Scholars have become less concerned with uncovering a one, true definition of beliefs, and are more interested in exploring individuals' understandings and perspectives as they exist within a certain context. The nature of beliefs has been found to be quite complex; they can change over time, remain static, or even be contradictory. Accordingly, a variety of methods has been used to investigate beliefs, and in many cases, researchers have employed two or more methods simultaneously. For example, discourse analysis (Kalaja, 1995; Wetherell & Potter, 1988), observations, interviews, diary studies, metaphor analysis (Ellis, 1999; 2001), self-reports, sentence-completion tasks, drawings, or questionnaires. It should be considered that such methods are often time-consuming and are better executed in small participant groups. The main advantage of these methods, however, is that they take the context of students' words and actions into consideration, and often from multiple perspectives.

3. Methodology

Based on the current trends learner beliefs research, LSP may be regarded as an ideal means by which to study them. For the purposes of this study, however, it was necessary to adapt the original technique to fit the constraints of my research. In the original method, a LSP workshop is carried out over the course of several hours and can take an entire day to complete. For my project, I decided to hold two shorter LSP workshops, which took place on campus at the University of Waterloo and were limited to one hour in length. The workshops began with a warm-up activity during which participants were instructed to build a bridge out of Lego blocks in a short period of time. After the warm-up, participants were given the main building task. Learners were given the prompt "Learning German is (like)..." and were asked to build a Lego model to depict a response, completing the sentence prompt. This prompt was borrowed from a study by Claire Kramsch (2006), who sought to investigate how foreign language students construct their learning experiences. Instead of completing the task with words, however, my participants were given approximately 25 minutes to build their responses, after which every participant had completed his or her own unique model. This was followed by the sharing phase, during which each person shared the story behind his or her model. This typically involved a description of the general meaning behind the Lego structure as well as the significance of smaller details. A total of nine participants, who were recruited from undergraduate German classes, attended the two LSP workshops. Because I am interested in exploring the diversity of beliefs held by learners, no exclusions were made in the recruitment of participants. In order to best investigate learners' beliefs, both LSP workshops were video and audio recorded, and photos of participants' Lego models were taken. These photos, as well as transcriptions of the recorded explanations of Lego models, make up the data which will be analyzed in a later section.

3.1 Participants

Of the nine participants who took part in the LSP workshops, seven were male and two were female (See Table 1). Six participants were undergraduate students and three were graduate students at either the Master's or PhD level. Most started

learning German at school or university except for two students who are heritage learners, which are quite common in the region of Waterloo due to the high number of German migrants who have settled there within the past century. Such learners may have been exposed to the German language at a young age, or may take German courses at university in order to communicate with older German-speaking relatives. For example, Jacob was born and grew up in Canada, attended the German Saturday school in Waterloo as a child, and now takes German courses for fun. Similarly, Sarah was born in Germany but moved to Waterloo when she was a child. She spoke German at home growing up, but decided to learn grammar through courses at university. Most of the non-heritage learners were enrolled in introductory German courses at the time of the workshops. They had declared majors in various fields of study and, in addition to German, spoke other languages such as French, Italian, and Chinese.

Pseudonym	Gender	Year of Study	Declared Major (Minor)	Years Learning German	Other Languages
Andrew	М	1 st year Bachelor's	Computer Science	1	French
Kenneth	М	2 nd year Bachelor's	Psychology (German)	2	unknown
Kevin	М	4 th year Bachelor's	Computer Science	1	Mandarin
Jacob	Μ	1 st year Bachelor's	Mechanical Engineering	>20 (heritage learner)	French
Jeff	Μ	1 st year PhD	German Studies	approx. 9	French
Nathan	M	2 nd year PhD	Mathematics	2-3	French, Italian
Rob	М	2 nd year Master's	Mathematics	2	French
Sonia	F	3 rd year Bachelor's	Accounting and Financial Management	1	unknown
Sarah	F	3 rd year Bachelor's	Environment and Business (German)	>20 (heritage learner)	unknown

Table 1: Summary of Participant Information

3.2 Metaphor Analysis

A key component of this study is the understanding of metaphors and their impact on our conceptual systems. Not only has metaphor analysis been used in studies of learner beliefs, metaphors also make the LSP method possible because they allow us to explain one thing in terms of another (to borrow the example from Kristiansen and Rasmussen [2014], a Lego model of a crocodile does not need to represent a crocodile per se, but can also represent an unpleasant manager). Several studies have used metaphor analysis (for example, Ellis, 2001; Kramsch, 2006; Wan et al., 2011) to understand how both learners and teachers conceptualize language learning, as well as how they perceive their own and each other's roles in the classroom. As mentioned above, this task for this study was influenced by Kramsch's (2006) study of 953 foreign language students. She implemented a sentence completion task made up of three phrases: "Learning a language is like...," "Speaking this language is like...," and "Writing in this language is like...." She generally found that the metaphors learners produced varied according to the medium (learning, speaking, or writing), confirming the general consensus that context should be considered in the study of language learner beliefs. Like Kramsch, I am interested in exploring the range of experiences that learners of a foreign language express, and specifically, how they express them through LSP.

Studying metaphors can reveal beliefs that are not easily expressed in literal language, similar to how LSP allows participants to build physical models of abstract ideas. Ortony (1993) described that literal language "has often been thought the most appropriate tool for the objective characterization of reality" (p. 1). In most of the literature about metaphor, however, scholars have been keen to deny this misleading preconception by supplying evidence of metaphors' importance for communication, problem-solving, learning, and making sense of the world (see, for example, Ortony, 1993; Johnson, 1987; Lakoff and Johnson, 1980). Within the broad scope of literature on metaphor, researchers have developed numerous definitions and classifications to better understand how we conceptualize metaphors and what role they play in our minds. For example, Schön (1993) described what he called the "generative metaphor," which allows us to see on thing as something else. This can be beneficial in a LSP workshop if learners choose to express their beliefs using a generative metaphor, as it is possible that the other participants could learn to conceptualize their learning in other ways. Metaphors are a fundamental aspect of LSP, and have therefore also been considered in the analysis of this study.

4. Results

The LSP workshops resulted in nine unique Lego models built by the workshops' participants. Each model depicts one or more metaphors which portray the beliefs of the builder, based on the builders' explanations. Descriptions and photos of the models produced during the workshops are given below. The analysis considers the individual learners and how their unique experiences can be observed in the models they have built, and their descriptions thereof.



1. Andrew: Learning German is like researching alien knowledge

Andrew's model depicts a scientist researching alien knowledge. He explained that the black box represents an alien monument that needs to be researched, and that learning German is like trying to piece together the pieces that have already been given to him. The metaphor is a comparison of understanding the German he encounters in class with the process of learning about an alien artefact; both are foreign and take time and effort (and presumably also intelligence) in order to be understood. Andrew also drew on his own personal experiences when explaining this metaphor as he explained that this situation reminds him of a video game he played as a child.



2. Kenneth: Learning German is like being separated by a wall

Kenneth's model depicts himself, represented by the robot R2D2, separated from the "world of German" by a tall, jagged wall. On top of the wall are Kenneth's first-year German instructor and teaching assistant, who shaped his first experience with the language. The "world of German," as Kenneth described it, is found on the other side of the wall. It is filled with representations of his memories and impressions of visiting Germany in the previous summer. The underlying metaphor in Kenneth's model is not easily summarized in a single statement. In spite of this, we can understand Kenneth's beliefs about his experience learning German based on the physical model he has constructed and his explanation thereof.

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3. Kevin: Learning German is like entering a new world

Kevin explained that he sees learning German as entering a new world, and has therefore constructed a figure, which represents himself, at the edge of a foreign land. Kevin explained that learning German has allowed him to enter the Germanspeaking online community. He imagines this to be different from the Englishspeaking and Chinese-speaking online communities that he is already a part of. The metaphor shown in Kevin's model compares entering a new imagined community with entering a new physical community; there are new things to explore which had formerly been inaccessible to him. 4. Jacob: Learning German is like capturing aliens and learning from them



Jacob's model depicts a scenario in which scientists are studying aliens in order to learn from them. He explained that the aliens arrive at unexpected times via their ship (left), and are then captured by scientists and separated into cells (back) so that they do not ban together and escape. The three Lego men standing at their respective "stations" are said to be scientists who are building a cyborg robot, healing diseases, and building tools. In Jacob's model, the metaphor compares learning German grammar in class with an alien invasion; they arrive unexpectedly and can be used to increase knowledge and perform various tasks.



5. Jeff: Jeff: Learning German is like building a house

Jeff has constructed a house to depict his conceptualization of learning German. Jeff used a Lego man to represent himself standing inside the unfinished house. He explained that he sees learning German as adding new parts to the house with each new thing he learns. The other people in the model represent the fact that language learning is a collaborative process and is not only done by one person. The people and objects stand for his teachers and German-speaking friends as well as German language resources such as books or film. He explained that, although the house may not be finished, it can still be a comfortable place to live.

6. Nathan: Learning German is like tearing down walls



Nathan used the metaphor of tearing down walls to describe his experience learning German. He explained that he had to learn to read German as part of his study of Music. In his model, he included three walls of different heights. The first and shortest wall represents his ability to read German; the second wall represents his listening comprehension skills; the last and tallest wall represents his speaking/pronunciation skills. He attributed most of his difficulty with speaking German to a lack of confidence. The metaphor in Nathan's model shows that he sees German learning as a series of obstacles to get past.





Rob learned German in what he called "a systematic way," which he attributed to his study of Math. Rob compared the parts of building a house to the parts of learning German: a house begins with a physical foundation just as a language begins with basic skills such as pronunciation and forming simple sentences. As the walls of Rob's house get higher, the blocks he used become more visually interesting, which, he explained, represents more complex language use such as "the ability to put very complicated sentences together or clever figures of speech." The propeller Rob added to the house represents the necessity to fly to German-speaking countries in order to continue learning, which is something Rob has personally experienced.

8. Sonia: Learning German is like climbing



Sonia's model depicts a person climbing a wall with several obstacles. She explained her metaphor by stating that learning German is like climbing; the process has its challenges but making progress is always very satisfying. She has constructed her model on a vertical plane and supported it with her coffee cup to illustrate the upward journey.



9. Sarah: Learning German is like building a house

Sarah's model represents her conceptualization of German learning as an experience closely associated with home and her family. Like Jeff and Rob, she has also constructed a house; however, her reasoning differs. Sarah described that as she learns, the house becomes taller (hence the two floors). She described that there is room for the house to also be built outwards, which is why it is open on one side, suggesting that she conceptualizes more than one direction to grow in. She has used Lego men to depict herself and the people she associates with speaking German, her mother and her sister. A simplified version of the underlying metaphor in Sarah's model is that learning German is like building a house; however, this simple sentence does not capture the complexity of Sarah's beliefs about learning German.

5. Discussion

The results of this LSP study are generally consistent with the previous literature about learner beliefs, the research about metaphor, and the goals set by the founders of LSP. Previous studies of beliefs which employ metaphor analysis (for example, Kramsch, 2006; Ellis, 2001) have already shown that using metaphors can be an effective way for learners to describe and discuss beliefs. As expected, the added visual element of LSP was useful for eliciting and detecting individual differences in the beliefs of language learners. A less expected finding of this study was the salience of participants' inclusion of their own fields of study in the explanations of Lego models. In several cases, learners used their current or former field of study to justify parts of their models or explanations. For example, Rob's attribution of his systematic house metaphor to his study of math. In addition to this, Nathan explained his model with regards to his previous study of music, and Sarah explained that she included a tree to represent her study of Environment and Business. Although these findings seem to suggest that learners' fields of study may have an influence on their beliefs, it is more accurate to say that, beyond their fields of study, the learners have drawn on their own personal identities and experiences when explaining their beliefs. This would also correspond with Andrew's mentioning of a game he used to play in explaining his model, as well as Sarah's inclusion of her family members.

Another salient aspect of the results was fact that there were many similarities between the models built and metaphors created. For example, we have seen that Jeff, Rob, and Sarah all built houses to describe their beliefs. Similarly, Nathan and Kenneth, and Sonia built walls. One explanation for this is the fact that the learners did not build these models in isolation, but in a group setting. It is therefore possible that learners took over ideas from the others or altered explanations of their own beliefs based on the explanations of their peers. In this case, the beliefs of learners may not necessarily be their own, but rather a co-construction of the beliefs shared by the group. However, this does not account for the fact that some learners used very similar metaphors in separate workshops. The ideas shared in the first workshop could not have influenced or altered the ideas shared during the second workshop; none of the participants attended both workshops. Rather, it is more likely that the building material, i.e., Lego blocks, influenced what learners chose to build. This aligns with the findings from Kramsch (2009), who found that subjects' descriptions varied based on the medium and language in question. Ultimately, this result emphasizes the importance of considering contextual factors when studying beliefs, and therefore supports the current research on the understanding of beliefs. The findings also support the use of metaphor for eliciting beliefs, as LSP has been effective for helping learners to express ideas that are otherwise not easily expressed using literal language. Overall, the results of the LSP workshops support the current trends in research about the beliefs of individual language learners.

6. Conclusion

The goal of this study has been to introduce the problem-solving and strategizing method "Lego Serious Play" (LSP) into the study of individual learner beliefs. This was done in an empirical study which used the method as a tool for eliciting language learners' beliefs about their own learning. As this method had not previously been used in the context of beliefs research or Applied Linguistics, the project was by nature exploratory. My research question was explored in short workshops, the results of which have demonstrated that individual beliefs are linked to individual experience and influenced by contextual factors. After analyzing the data from the workshops, it can be confirmed that LSP can contribute to our understanding of language learners' beliefs, and is helpful for several reasons. First, learners often provided a great deal of information about their ideas, beliefs, and opinions, even without being prompted to do so. Participants seemed to be willing to provide many details about their creations and their ideas about learning German, even without being prompted by the facilitator. Next, the variety of data collected strengthened the validity of participants' responses and their analyses. By holding just one LSP workshop, a researcher can access information from three different avenues: (1) the physical Lego models; (2) the metaphors learners use to describe their learning; and (3) the spoken explanations which provide more details about the learners' beliefs and emotions. Lastly, the aspect of play created a fun and relaxed, yet productive atmosphere for participants. The elements of play and creativity allow the builder to bring in more figurative elements which add a level of complexity of the response. This added detail in LSP allows us to see and understand more about the learners' beliefs than other methods for studying beliefs. After conducting my own LSP workshops, it was found that learners' beliefs about language learning are highly influenced by their own subjective experiences. There is a wide variety of opportunities for further research involving the LSP in the field of learner beliefs research or Applied Linguistics in general.

By participating in LSP, participants may become more aware of their own beliefs and knowledge as they build them into a physical model. This is known as language learning awareness, which can be described as "conscious perception and sensitivity in language learning" (Constitution for the Association for Language Awareness, cited in Muñoz, 2014). Similarly, LSP could contribute to the development of learners' own academic self-regulation, which has been described as "the selfdirective process through which learners transform their mental abilities into academic skills" (Zimmerman, 1998; p 2). Learning is understood as a cyclical process under the theory of self-regulation; as such, learners continuously reevaluate the beliefs that precede their efforts to learn. Because the main task of LSP involves reflection on one's own beliefs about language learning, it is likely that this could positively contribute to learners' own language learning awareness or academic self-regulation. Moreover, the group setting of LSP promotes the coconstruction of beliefs, allowing all learners who take part to access and benefit from a shared network of knowledge and beliefs about language learning.

6.1 Limitations

In spite of the above-mentioned benefits, there are some limitations to the study. First, although the small number of participants ensured that participants had enough time to express their beliefs, a larger group would have resulted in a larger data set. A small data set does not allow for a thorough investigation of factors such as gender or level of German proficiency. A further limitation is the possibility that the learners' models, or descriptions thereof, may have been influenced by the other participants' presence and their respective contributions. This is perhaps less likely with regards to the models, which were often unrecognizable without a description; however, it is likely that participants' explanations had an effect on what the others chose to share. It was felt that despite this potential influence of others, it was overall more beneficial to have students present their models to their peers, as that triggered a lively discussion and it allowed them to talk about their beliefs more "naturally" than if they had to explain them only to the researcher.

6.2 Suggestions for Future Research

There are several directions for future research about LSP and learner beliefs to pursue. This study attempted to get a very general overview of the beliefs learners hold about learning German in general; however, there are countless other prompts that could be used with LSP to explore other, specific aspects of learners' beliefs. Secondly, one could use the LSP method in its original form, including all seven application techniques, instead of a shortened version. This could provide a more indepth sharing and understanding of beliefs and their origins, or could be used to uncover the origin of certain problems amongst learners, such as learner anxiety. Lastly, the use of LSP does not need to be limited to learners as subjects. The beliefs of language teachers or teachers in training have also been investigated (for example by Horwitz, 1985; Wan et al., 2011). Ultimately, LSP has been shown to be an effective and interactive process which can be used by teachers or researchers to understand more about the beliefs of language learners.

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