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The Benefits of Participating in a Form of Life
Interpretations of Complex Concepts among Experts and Novices in Records Management

Abstract
This study is an empirical investigation into the specific advantages gained through familiarity with forms of life and their accompanying language games, as understood by Ludwig Wittgenstein (1953), when interpreting and conceptualizing about complex concepts that are represented within that form of life. Subjects with experience in a specific form of life, e.g., records management, were presented with passages representing complex concepts embedded in that form life. The subjects were asked to rank interpretations of those passages in order to determine which aspects of the complex concepts they found most salient. Their responses were compared with those of two groups of novices in records management. The differences in responses between the three groups highlight the specific knowledge effects at work. Finally, the paper addresses methods for distinguishing between familiarity with concepts and familiarity with language.

Introduction
In his *Philosophical Investigations* (1953), Ludwig Wittgenstein battles against “the bewitchment of our intelligence by the means of language” (aphorism 109). Instead of focusing solely on the *meanings* of words, he exhorts us to consider the *uses* of words and the situations in which those uses occur. He refers to these concepts as *language games* and *forms of life*. Although he offers no explicit definitions for either concept, he maintains that language games provide the framework in which an example of the word’s usage “makes sense” (Blair, 1990). As such, they are the means by which one learns new words, or new uses for familiar words, within the context of a particular community or culture. Language games do not provide sets of rules for appropriate speech or actions, but a natural structure that encourages a certain manner of speech or action (Blair, 1990). Wittgenstein refers to these structures as *games* in order to emphasize that the speaking of language is part of an activity, also known as a form of life (Wittgenstein, 1953). For Wittgenstein, forms of life include such activities as giving and obeying orders, describing the appearance of an object, reporting an event, forming and testing hypotheses, or even guessing riddles and telling jokes (ibid.). One cannot gain mastery of the language employed by a community without first understanding the forms of life in which those phrases are used (Wittgenstein, 1966). Furthermore, an understanding of a form of life can only be gained though active participation in that form of life (Blair, 1990).

The profession of records management entails many such forms of life. Records managers are concerned with the analysis of how information can best be used as “a tool within a particular organization” (Choksy, 2006, xviii). Some of their principle activities include determining what records should be created for a given business process, ensuring that the records are maintained in safe environments and that they are disposed of properly when no longer needed or require. Each of these actions must be also in compliance with legal and regulatory requirements (Brumm & Carlisle, 2005). These forms of life naturally entail language games that provide a structure for how language is used. The papers and articles that form the records management discourse often do not include words or phrases that would be unfamiliar to those outside the profession. In addition, most of the key terms of records management, such as *record*, *retention*, and *compliance*, are used in a manner that is broadly consistent with their usage among the general
population. Nevertheless, the language used within this discourse might follow subtle constraints, so that the main point or purpose of a given passage would not be fully understood by non-records managers.

This study is an investigation into the specific effects associated with this phenomenon. Although records management is the object of study, the purpose is not to examine records management per se. Rather it is designed to identify the processes associated with knowledge effects and to determine the extent to which those processes are associated with participation in a form of life, as opposed to the direct application of knowledge. The study examines complex concepts that are not established enough to be represented by a single term or a short phrase, but require more lengthy description such as a passage of text. Because concepts of this sort do not tend to have linguistic labels, they are likely to be referenced primarily in the context of a specific activity or form of life (e.g., retaining records, etc.). Therefore, participation in a form of life might have an effect on which aspects of the complex concept are considered most salient. By shedding light on such processes, this study endeavors to examine some of the problems that might occur when multiple groups of people, each with their own base of knowledge and experience, attempt to communicate with each other or attempt to use a common controlled vocabulary.

In an earlier investigation into the organization of complex concepts, Chi, Feltovich, and Glaser (1981) presented a series of physics problems to a group of physics experts and a group of novices and asked the subjects to categorize each problem. Chi et al. found the experts categorized the problems according to general physics principles, while the novices tended to focus on the surface similarity of the problems (e.g., problems involving springs or inclined planes). In addition, Chi et al. and Chi, Hutchison, and Robin (1989) found that, when people categorized items in a domain for which they had expert knowledge, they were effective at applying their knowledge to the categorization. A series of studies conducted by Douglas Medin (e.g., Medin, Lynch, Coley, & Atran, 1997) found that experts and novices attend to different properties when deciding if an item is a good example of a given category. In addition, Barsalou (1982) found that the salience of certain properties of objects can depend on the circumstances in which they were used. For example, the property floats might not ordinarily be salient to the entity ball, even though it is true of most balls. However, the salience of that property is likely to increase if one is in need of a floatation device.

Concepts that are represented by convenient linguistic labels, such as tree, are likely to be well-established with readily apparent properties such as height, and members, such as elm or even tree in my backyard. In their study of the effects of expertise on one’s conception of tree, Lynch, Coley, and Medin (2000) provided subjects with specific types of tree and asked the subjects to rate each type in terms of certain preselected properties, including height and weediness [sic]. The subjects also rated how well each type of tree fit the category of trees in general. They found that subjects with expert knowledge tended to rate the tallest trees as most the most typical, while novices rated the trees that they were personally most familiar with as the most typical. Studies such as Lynch et al. generally do not ask the subjects to provide descriptions of the concepts, since such descriptions are likely to represent the subject’s understanding of the accepted meaning of the terms used to refer to the concepts. Instead, they present the subject with specific tasks in order to determine the probable cause for different behaviors in performance of the tasks.

In contrast, concepts that have no linguistic label and that can only be represented with a complex description are unlikely to have readily apparent properties or exemplars.
Therefore, when studying these concepts, it is not practical to measure the difference in how they used in terms of the salience of its properties or exemplars. Instead, subjects in the current study were provided with a set of interpretations of a passage and were asked to rank them in terms of their appropriateness to the passage (see Table 1). Some interpretations (“Main”) are designed to represent one of the main points of the passage, other interpretations (“Not Main”) represent points made by the passage other than the main points, while additional interpretations (“False”) represent points not made by the passage. In addition, some interpretations use similar wording to the passage, while other interpretations seek to convey the same concept but with dissimilar wording. Because subjects were asked to rank the interpretations, they did not need to determine which interpretations are valid for the passage and which are not, but simply sequenced them by their perceived appropriateness. In addition, the subjects could not refer back to the passage when ranking the interpretations, which forced them to rely on their intuitions and their short-term memory.

**Table 1.** Sample passage and interpretations

<table>
<thead>
<tr>
<th>Passage</th>
<th>Interpretations</th>
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<tbody>
<tr>
<td>Record retention policies and procedures must be regularly and fully</td>
<td>Similar: To be legally acceptable, record retention policies must be not only</td>
</tr>
<tr>
<td>implemented by corporate business units. If this is not done, preparing</td>
<td>developed, but implemented.</td>
</tr>
<tr>
<td>retention guidelines is merely a time-consuming exercise. For corporate</td>
<td>Dissimilar: A plan for ultimate disposition of records will provide no benefit</td>
</tr>
<tr>
<td>retention practices to be considered legally acceptable, records must</td>
<td>it is not acted upon.</td>
</tr>
<tr>
<td>be discarded in the normal course of business when indicated in</td>
<td></td>
</tr>
<tr>
<td>retention policies and procedures.¹</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpreted as Main</th>
<th>Interpreted as Not Main</th>
<th>Interpreted as False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation: Preparing retention guidelines and</td>
<td>Preparing retention guidelines and discarding</td>
<td>Legally acceptable retention guidelines</td>
</tr>
<tr>
<td>discarding records can both be time-consuming exercises.</td>
<td>records can both be time-consuming exercises.</td>
<td>require that records be retained in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>normal course of business.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legal policies require</td>
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<tr>
<td></td>
<td></td>
<td>corporations to identify the records</td>
</tr>
<tr>
<td></td>
<td></td>
<td>that they have discarded.</td>
</tr>
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**Subjects, Materials and Procedure**

A total of 29 subjects were recruited for this study: ten professional records managers, nine master’s degree students in library and information science (LIS) and ten undergraduate students. None of the LIS graduate students or the undergraduate students had any knowledge of or formal education in archives or records management. The subjects were each offered a $10 gift card for participating in the study.

The stimuli consisted of ten passages of one to two paragraphs in length taken from larger article or paper. Five of the passages were taken from records management literature (e.g., *Information Management Journal*). The remaining five passages were taken from *The New Yorker*, a general interest periodical. None of the passages were less than two years old, reducing the chance that a subject was already familiar with the passage. For each passage, six interpretations were provided as described above. Three professional records managers acted as judges, reviewing and validating the interpretations of

records management passages. In the rare cases where the judges disagreed, the change suggested by the majority was adopted. A separate group of two Ph.D. students reviewed and validated the interpretations of general interest passages. Finally, two additional LIS Ph.D. students served as subjects for a pre-test of the questionnaire. In the pre-test, fatigue seemed to have a strong effect. Therefore, the number of trials was minimized and practice trials were eliminated.

For each trial, the subject read the passage on a computer screen. Once the subject was ready she pressed a button to replace the passages with six interpretations of the passage. She then ranked the interpretations according to their appropriateness to the passage. Subjects were assigned to one of three different random orders of the trials to control for carryover effects. Subjects took an average of 25 minutes to complete the ten trials.

In the records management literature, records managers are considered experts, while the other two groups are considered novices. Because records managers and graduate students are usually college graduates, they are assumed to have reasonably high standards of literacy, which undergraduates may or may not share. Therefore, in the general literature, both graduate students and records managers are considered experts, while undergraduates are considered novices. The first hypothesis (H1) is that experts will be able to consistently distinguish between the Main, Not Main, and False interpretations. The second hypothesis (H2) is that novices will be able to distinguish between the interpretations that are valid and invalid, but will be less effective at identifying the interpretations that represent the main point of the passage. The third hypothesis (H3) is that novices are likely to have less confidence with the concepts represented in the passage. Therefore, they will be more likely to give high rankings to interpretations that use wording similar to the passage. In contrast, experts are likely to pay attention to deeper similarities between the interpretations and the passage. Therefore, the fourth hypothesis (H4) is that the rankings given by experts will not significantly differ between the Similar and Dissimilar conditions.

Results and Discussion
For the records management passages (see Figure 1), all three groups of subjects gave significantly lower rankings to False interpretations than to Main interpretations. Records managers gave significantly higher rankings to Main interpretations (M = 4.77) than to Not Main interpretations (M = 3.18) t(198) = 7.66, p < .01, as did LIS graduate students (M1 = 4.39, M2 = 3.3) t(178) = 4.53, p < .01. The rankings given by undergraduate students did not significantly differ between the Main and Not Main condition. Therefore, the data concerning the records management literature supported H1, while H2 was supported only for the records managers.

For the general interest passages (see Figure 2), all three groups gave significantly higher rankings to Main interpretations than to Not Main or False interpretations. Records managers gave significantly higher rankings to Main passages (M = 4.39) than to False passages (M = 2.53) t(198) = 3.30, p < .01. However, the rankings provided by graduate students and undergraduates did not significantly differ between the Not Main and False conditions. Because the LIS graduate students were considered experts in regards to the general interest literature, H1 is supported only for the records managers. In

2. Because the rankings are not completely independent of each other, the t tests described in this study provide an indication of general trends, but do not conclusively demonstrate significant effects or the lack thereof.
addition, the two other groups had trouble distinguishing between the Not Main and False conditions as opposed to the Main and Not Main conditions as predicted by H2. On the whole, the LIS graduate students behaved like experts in the records management literature, which they had no exposure with, but behaved like novices with the general interest literature. It is possible that the background and experience of the LIS graduate students was not in line with the assumptions of the study, i.e., it is possible that many had a higher exposure to academic writing that was similar to records management literature than they had to general interest periodicals. In addition, when a group of subjects had difficulty making a distinction between the types of interpretations, the problem occurred between the Main and Not Main interpretations for the records management literature and between the Not Main and False interpretations for the general interest literature. This suggests that the False interpretations were more salient in the specialized literature, but the Main interpretations were more salient in the general literature.

In the records management literature (Figure 3), records managers provided significantly higher rankings for Main Similar interpretations than Main Dissimilar interpretations \( (M_1 = 5.7, M_2 = 3.84) \) \( t(98) = 8.72, p < .01 \) and significantly higher rankings for Not Main/Similar than Not Main/Dissimilar interpretations \( (M_1 = 3.44, M_2 = 2.92) \) \( t(98) = 1.72, p < .05 \). LIS graduate students provided significantly higher rankings for Main/ Similar interpretations than Main/Dissimilar interpretations \( (M_1 = 5.20, M_2 = 3.58) \) \( t(88) \)
300

= 5.38, \( p < .01 \), as did undergraduates (\( M_1 = 4.28, M_2 = 3.62 \)) \( t(98) = 1.93, p < .05 \). In addition, undergraduates provided marginally lower rankings for False/Similar interpretations than False/Dissimilar interpretations (\( M_1 = 2.70, M_2 = 3.20 \)) \( t(98) = 1.59, p < .06 \). No other significant differences were found between the Similar and Dissimilar conditions, including any of the results from the general interest literature (see Figure 4). Therefore, neither \( H_3 \) nor \( H_4 \) are supported by the data. One possible explanation is that passages with similar wording are more likely to represent the precise concept expressed in the passage. This might indicate that the terms used in the passage are part of a controlled vocabulary that is used by people who participate in records management activities. If that is the case, then the similarly-worded interpretations might match the specific purpose of the passage to a greater extent than would be appreciated by novices.

One question yet to be addressed is whether the differences in performance between experts and novices is due to participation in activities that make up a form of life, or due to the direct application of specific knowledge that is relevant to the topic. In other words, do the experts behave differently because they have a sense for the “natural structure” of records management activities, which encourages a certain manner of speech and action, or is the difference in behavior simply due to the fact that the experts possess more factual knowledge? The responses to one of the records management passages might shed light on this question. That passage contains statements that were deemed inaccurate by the records management judges. The judges felt that one interpretation represented the main point of the article, but made an inaccurate statement about records management in general. If the records managers were simply applying their knowledge of records management to the interpretation, it seems likely that they would give a relative low ranking to an interpretation that they felt was inaccurate, regardless of whether it was appropriate for the passage. Alternately, if participation in records management as a form of life gives one greater mastery of the language used in that form of life, then it seems likely that records managers would more easily grasp the purpose of the passage and identify the interpretations that are appropriate to that purpose, whether they feel that purpose is valid or not.

Both records managers and graduate students gave significantly lower rankings to the Main interpretation that was considered invalid for records management in general than to the other Main interpretation of that passage. Although the two groups of subjects did not significantly differ from each other, the variance for the LIS graduate students was higher, suggesting that there was more diversity of opinion among that group than among the records managers. These results suggests that the records managers’ higher levels of knowledge were working against them in this case, since the fact that the interpretation was invalid overshadowed the fact that it was an appropriate representation of the passage. However, the fact that this analysis is post hoc and has a low sample size makes it difficult to form conclusions from the data.

**Conclusion**

This study has examined the specific effects that participation in a form of life has on the apprehension of textual representations of complex, context-dependent concepts that find utility within that form of life. It has found that specific wording has a great effect on the use of these complex concepts. Changes to wording seem to result in a great deal less confidence among experts as to whether the original purpose of the statement remains intact, even if the change to wording is deemed to be equivalent by expert judges. The results also seem to suggest that the salience of either the main purpose of the passage
or statements that are valid for the passage tend to be lower for novices than for experts. Further study is needed to determine the specific conditions that are most likely to lend themselves to specific modifications of salience on the part of novices. Finally, preliminary results suggest that experts are more inclined to apply their knowledge directly than they are to make use of the language games that they use. Future studies will compare experts’ ability to interpret passages that use familiar concepts with their ability to interpret passages that use familiar language.

References