

# Organizational Learning under Interest Arbitration\*

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## I . Introduction

Industrial relations literature assumes an inherent conflict of interest between employees and employers. To resolve the conflict, several dispute resolution procedures have been contrived. The most frequently used one is strike. Strike imposes direct costs, such as lost income and profit, to create a contract zone, a range of potential settlements that both employers and labor unions prefer to a strike. Arbitration is an alternative to strike (Adams, 1981). In arbitration, an arbitrator decides a final outcome when the parties fail to reach a voluntary agreement. Unlike strike, arbitration imposes little direct costs on the parties. Thus, arbitration needs a fundamentally different mechanism to create a contract zone (Farber and Katz, 1979).

In their seminal paper, Farber and Katz (1979) maintained that the major source of arbitration leverage to create a contract zone is derived from the uncertainty of the

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parties regarding arbitrator behavior. If the parties are risk averse, they will be willing to settle for less than the expected arbitration outcomes to avoid the uncertainty associated with arbitration. In fact, if there is no uncertainty about arbitrator behavior, both parties have no incentive to agree on terms other than what the arbitrator would impose (Crawford, 1979). These arguments suggest that bargaining behaviors and outcomes under an arbitration system are shaped by the parties' expectations about what arbitrators think is a fair outcome (Hirsch and Donn, 1982).

Despite the important role of the parties' expectations about arbitrator behavior in arbitration theory, few previous studies have investigated how the parties form such expectations (but for an exception, see Olson and Rau, 1997). Olson and Rau (1997) maintained that “(w)hile there is widespread agreement that a complete understanding of interest arbitration must take into account the parties' arbitration expectations, very little is known about the process the parties use to form these expectations” (p. 238). The purpose of this study is to fill this gap by applying organizational learning theory to interest arbitration.

The bargaining parties under an arbitration system have strong incentives to learn about arbitrator behavior. As a party learns more about arbitrator behavior, less the uncertainty the party faces, shifting the contract zone in that party's favor (Farber and Katz, 1979). Organizational learning theory suggests that the parties may learn about arbitrator behavior in two ways. The parties may learn from their own experience (March and Olsen, 1975; Argyris and Schon, 1978; Olson and Rau, 1997; Ashenfelter and Dahl, 2012) and from the experience of other bargaining relationships (Bandura, 1977; Levinthal and March, 1993; Beckman and Haunschild, 2002; Denrell, 2003; Ashenfelter and Dahl, 2012). Organizational learning literature also suggests that knowledge may not last forever (Argote, Bekman, and Epple, 1990; Arthur and Huntley, 2005; Besanko, Doraszelski, Kryukov, and Satterthwaite, 2010; Madsen and

Desai, 2010). This study examines the possibilities of experiential and vicarious learning and knowledge depreciation in arbitration system.

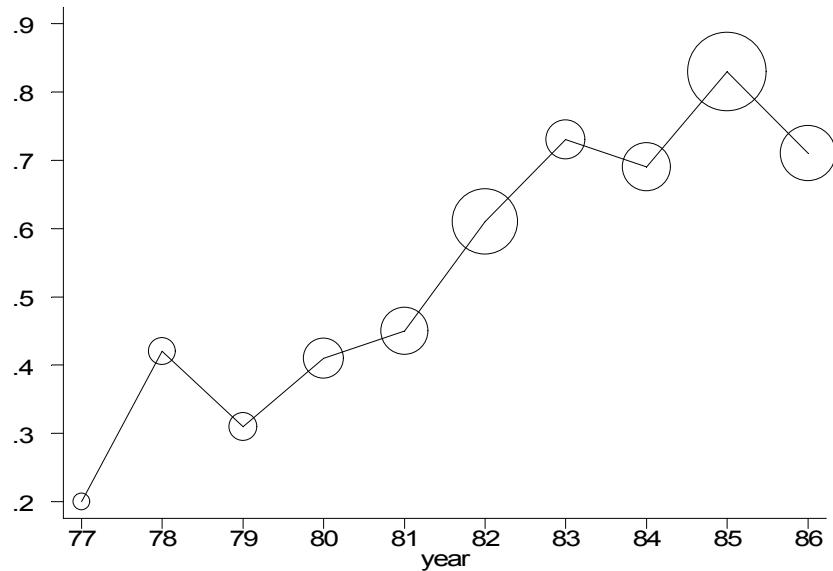
## II. The Institutional Setting

This study focuses on how the bargaining parties learn about arbitrators' ideas about appropriate wage comparison groups in Wisconsin teachers' collective bargaining. Ross (1948) observed that "comparisons play a large and often dominant role as a standard of equity in the determination of wages under collective bargaining" (p. 50). Examinations of actual arbitration decisions (Harm, 1985) and interviews with arbitrators (Dell'Omo, 1989) have documented that arbitrators routinely make wage comparisons. Considering the important role that wage comparison plays in an arbitrator's decision-making process, one factor that the bargaining parties have to learn about is what an arbitrator thinks is an appropriate wage comparison group.

In Wisconsin teachers' collective bargaining, the athletic conference had been well established as a wage comparison group among arbitrators by the mid-1980s (Halm, 1985; Olson and Jarley ,1991).<sup>\*</sup> However, when arbitration was first introduced in 1978, there was substantial uncertainty about what arbitrators considered as an appropriate comparison group, since laws and regulations had never been specific enough to provide arbitrators with useful guide to choosing comparison groups. Figure 1 reports the trend of the use of the athletic conference as a primary

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\* Athletic conference is a collection of school districts for interscholastic athletic competition. The interscholastic athletic program can be defined as "a contest between selected individuals or teams representing two or more schools organized and controlled by school authorities" (Daughtrey and Woods, 1976, p. 359). In the United States, interscholastic athletics have been recognized as an integral part of public education and virtually all the schools in Wisconsin participate in interscholastic competition.



<Figure 1> Use of the Athletic Conference by Arbitrators<sup>ab</sup>

<sup>a</sup>Size of symbol represents the number of arbitration awards made in a given year. Total number of decision is 386.

<sup>b</sup>Although the wages for the 1977–78 school year were determined by arbitration in some cases, these decisions were made in 1978.

comparison group by arbitrators between the period of 1977-78 and 1986-87 school years. The figure shows that the athletic conference was used as a primary comparison group in less than 40% of decisions when arbitration was introduced, but the use of the athletic conference increased gradually during the early 1980s. I expect that as the athletic conference became established as a primary wage comparison group among arbitrators, the bargaining parties learned about the new information and adjusted their bargaining behaviors accordingly.

### III. Theory and Hypotheses

#### 1. Experiential Learning

Experiential learning suggests that the bargaining parties may learn about what an arbitrator thinks is an appropriate wage comparison group by receiving their own arbitration awards. Direct experience has been emphasized as an important learning mechanism in organizational learning theory (e.g., Cyert and March, 1963; March and Olsen, 1975; Argyris and Schon, 1978). The learning curve literature shows that organizations often improve their efficiency by repeating the same task (Argote, Beckman, and Eppel, 1990; Irwin and Klenow, 1994; Darr, Argote, and Eppel, 1995; Arthur and Huntley, 2005; Thompson, 2012.). Organizations may also learn from their deliberate efforts to acquire new information from their own experience (Adler and Clark, 1991; Lapre, Mukherjee, and Wassenjave, 2000; Zollo and Winter, 2002; Muehlfelf, Sahib, and Witteloostuijn, 2012; Perkins, 2014). TQM, QC, and employee suggestion programs in gainsharing plans are examples of the deliberate learning (Arthur and Huntley, 2005).

One previous study (Olson and Rau, 1997) investigated experiential learning under an arbitration system. Olson and Rau (1997) examined the negotiated wages after arbitration decisions. They argue that in final offer arbitration, which requires an arbitrator to choose one of the two final offers of the union and employer, an arbitrator's decision reveals to the parties that the arbitrator's fair wage belief is higher or lower than the mean of the final offers. In subsequent rounds of negotiation, the parties will modify their bargaining behavior based on the new information.

Using data from Wisconsin teachers' negotiation, Olson and Rau (1997) found that the negotiated wages following the arbitration decision were higher when the union's

offer had been selected than when the school district's offer had been selected. In addition, the variance of negotiated settlements decreased, which is also consistent with the argument that direct experience reduces the uncertainty about arbitrator behavior. These results suggest that the parties do learn about the arbitrator's view of fairness from their own experience.

Following Olson and Rau (1997), I argue that an arbitration decision reveals the arbitrator's private information about an appropriate wage comparison group to the bargaining parties. Since the choice of a comparison group is critical in deciding what a fair outcome is, arbitrators usually make explicit statements in their written awards about the comparison group that they use. Thus, direct experience provides the parties with unambiguous information.

However, each arbitration experience provides information about the specific arbitrator's notion of an appropriate comparison group. Since an arbitrator is assigned after the parties reach an impasse, such information would not be very useful in subsequent rounds of negotiation unless there is high inter-arbitrator reliability and temporal stability (Olson and Rau, 1997). Previous studies on arbitrator behavior provide some evidence for inter-arbitrator reliability and temporal stability (Ashenfelter, Dow, and Gallagher, 1985; Farber and Bazerman, 1986; Dell'Ombo, 1987; Ashenfelter and Dahl, 2012). For instance, Ashenfelter et al. (1985, as cited in Olson and Rau, 1997) found substantial correlation between factfinders' non-binding recommendations and arbitrators' decisions. Using experimental designs, Dell'Ombo (1987) and Farber and Bazerman (1986) also found significant inter-arbitrator reliability.

Inter-arbitrator reliability and temporal stability of arbitrators' choice of comparison groups for a specific case is likely to be much higher than what previous studies suggest because arbitrators are usually very reluctant to change the comparison group used in previous arbitration decisions. In his arbitration decision, renowned Wisconsin arbitrator Kerkman (Kenosha Unified School District v. Kenosha Education

Association 1983) stated that maintaining consistency in choosing a comparison group is in the best interest of the parties once an appropriate comparison group has been determined for the parties. Such consistency avoids the comparison group shopping in which parties often engage and creates a basis for wage comparisons that are conducive to settlement. This suggests that the parties' own arbitration experience provides them with unambiguous, reliable and temporally stable information about what arbitrators think is an appropriate comparison group for the parties. Thus, following hypothesis is proposed.

H1. The bargaining parties will pay closer attention to the settlements of other school districts in their own athletic conference as the number of arbitration decisions increases that they received using athletic conference as a comparison group.

## 2. Vicarious Learning

Organizational learning theory suggests that organizations learn not only from their own experience, but also through observing the experience of other organizations (Levinthal and March, 1993; Beckman and Haunschild, 2002; Baum and Dahlin, 2007; Denrell, 2003; Kim and Miner, 2007; Bresman, 2013). Benchmarking is a well-known example of vicarious organizational learning (Peters and Waterman, 1982; Collins and Porras, 1994). Suggesting the importance of vicarious learning in industrial relations, Conell and Cohn (1995) found that successful strikes stimulated more strikes than unsuccessful strikes did. In their study of the bargaining parties' use of expert agents in New Jersey final-offer arbitration system, Ashenfelter and Dahl (2012) also found that the rising use of experts over time could be accounted for by vicarious as well as experiential learning.

Vicarious learning suggests that arbitration decisions made in other bargaining relationships may provide useful information to the bargaining parties. Since each organization faces different internal and external environments, however, the experience of others is inherently less informative and more difficult to interpret than direct experience (Abrahamson and Fairchild, 1999). Thus, organizational learning literature suggests that learning is more likely to occur among similar organizations (Festinger, 1954; Cyert and March, 1963; DiMaggio and Powell, 1983; Haunschild and Sullivan, 2002; Baum and Dahlin, 2007; Kim and Miner, 2007). Cyert and March (1963) argued that organizations take into account the experience of similar organizations when they adjust their behaviors. Institutional theory suggests that organizations tend to imitate other organizations similar to themselves (DiMaggio and Powell, 1983). These arguments suggest the informative value of the experience of similar organizations (Mezias and Lant, 1994; Baum and Ingram, 1998; Greve, 1999). The similarity between organizations reduces information equivocality (Weick, 1979) and increases the interpretability of the experience.

In the present study, I argue that similarity in size and geographical proximity are two factors that make school districts similar, thus facilitate vicarious learning among districts. It has been well documented in the organizational theories that differences in size are associated with differences in structure, resources, constraints, and environments (Caplow, 1957; Penrose, 1959; Hannan and Freeman, 1977). In a similar vein, Arbitrator Yaffe (La Crosse Education Association v. School District of La Crosse 1983) maintained that “the size of school districts appears to significantly affect the conditions of employment of their employees for a variety of reasons, including, but not limited to, differing political climates..., the correlation which exists between the size of staff and the flexibility districts have ..., and the labor relations history and sophistication of the parties” (p. 3). Interactions among organizations also tend to be localized in terms of size because similarly sized

organizations tend to occupy the same niche in an organizational field, which also facilitates vicarious learning (Hannan and Freeman, 1977).

Geographical proximity tends to make school districts similar because many factors that affect the characteristics and wage level of a school district are unlikely to be delimited by arbitrarily drawn school district boundaries. These factors include demographic characteristics that affect the types of programs that are demanded and offered, property values and political climates that affect the amount of resources available to a school district, and labor market conditions. The political nature of the education system also facilitates communication and coordination among geographically proximate school districts. Since school boards are elected by citizens of the district, they tend to closely monitor what neighboring school districts do to meet the demands and expectations of their constituents.

H2a. The bargaining parties will pay closer attention to the settlements of other school districts in their own athletic conference as the number of arbitration decisions increases that were made in similarly sized school districts using athletic conference as a comparison group.

H2b. The bargaining parties will pay closer attention to the settlements of other school districts in their own athletic conference as the number of arbitration decisions increases that were made in more geographically proximate school districts using athletic conference as a comparison group.

Organizational learning literature suggests that superordinate relationship is conducive to vicarious learning because it facilitates the interaction and communication among its member organizations (Darr, Argote, and Epple, 1995; Baum and Ingram, 1998). School districts in the same athletic conference maintain

frequent interactions and teachers often become personal acquaintances since they compete against each other in high school sports. Such frequent interaction provides an opportunity to observe the experience of other school districts.

The experience of other school districts in one's own athletic conference may be especially informative to a focal school district because of the reciprocal nature of the choice of comparison group. That is, if school district A is an appropriate referent for school district B, school district B must be an appropriate referent for district A. This suggests that when an arbitrator uses the athletic conference as a comparison group for a school district, it not only provides the school district receiving the award with information on what the arbitrator thinks is an appropriate comparison group in their case, but also gives other school districts in the same athletic conference essentially identical information.

H2c. The bargaining parties will pay closer attention to the settlements of other school districts in their own athletic conference as the number of arbitration decisions increases that were made in other school districts in their own athletic conference using athletic conference as a comparison group

#### Do the Bargaining Parties Forget?

Recent empirical studies on organizational learning have found that knowledge depreciates rapidly, suggesting that organizations do forget (Argote, Bekman, and Epple, 1990; Arthur and Huntley, 2005; Besanko, Doraszelski, Kryukov, and Satterthwaite, 2010; Madsen and Desai, 2010; Kleiner, Nickelsburg, and Pilarski, 2012). In their study on the construction of Liberty Ships during World War II, Argot et al. (1990) found that only 3.2% of the stock of knowledge available at the beginning of a year remained one year later. In their studies on pizza stores, Darr et al. (1995) found that virtually all knowledge disappeared after 6 months.

However, the occurrence and extent of depreciation is likely to depend on the nature of the information. Organizational forgetting may result from lost or inadequate records. Turnover of members who have accumulated knowledge may also contribute to knowledge depreciation (Argot et al., 1990; Argote, 1999). Thus, knowledge easily codified or embedded in technology is less likely to depreciate than knowledge embedded in people (Argote, 1999). Argote and her colleagues (Argote et al., 1990; Darr et al., 1995) found that knowledge depreciation occurred more rapidly in pizza stores than in shipyards.

In the present study, the knowledge of interest, arbitrators' choice of comparison groups, is simple and can be easily codified. Furthermore, all arbitration awards are public documents kept by a state agency and easily accessible by the bargaining parties. Thus, the effect of turnover should be reduced because the information is preserved by an outside agency. This makes it easier for the parties to retain the knowledge.

However, the most important factor preventing knowledge depreciation in this setting is the importance of information. As discussed above, the choice of comparison groups is the most important factor in evaluating fairness and an offer based on inappropriate comparison groups is less likely to be perceived as fair by arbitrators. Thus, what arbitrators consider is an appropriate comparison group is the most critical piece of information for the bargaining parties in forming and justifying their offers in negotiation and arbitration. The parties are unlikely to forget such critical information. A careful examination of arbitration awards reveals that it is not uncommon for the parties to refer to all of the previous arbitration awards they have received in the briefs that they submit to arbitrators. Thus, I expect that the knowledge acquired from experience will not depreciate in this setting.

## IV. Method

### 1. Sample

The sample used in the present study was limited to K-12 school districts. There were 361 K-12 school districts in Wisconsin. Ninety-three school districts were dropped due to incomplete data. Thus, subsequent analyses were based on 268 school districts.

In 1978, the Municipal Employment Relations Act introduced final offer interest arbitration in Wisconsin teachers' collective bargaining. Since I am interested in how the bargaining parties learned from arbitration experience, I limited my analyses to the negotiated settlements during the period between the school years of 1979-80 and 1986-87. I limited my analyses to the period before 1987 because of a small but significant amendment of the law occurred in 1986. The original law required arbitrators to compare the wages and working conditions of a focal school district with those of comparable communities but the amendment dropped the term of comparable communities. This modification was interpreted by some arbitrators and bargaining parties to require a wage comparison group broader than the athletic conference. Reflecting this legal change, the use of the athletic conference by arbitrators decreased in the 1986-87 school year (see Figure 1). During the period, there had been 44 to 48 athletic conferences in Wisconsin.

### 2. Analyses and Measures

The present study focuses on how the choice of a wage comparison group by arbitrators affected the parties' bargaining behavior. The hypotheses suggest that as the use of athletic conference as a wage comparison group by arbitrators increases,

the bargaining parties will pay closer attention to the wage settlements of other school districts in their athletic conference when they negotiate a new contract. To test the hypotheses, I estimated the following teacher wage equation and examined the regression weight given to the interaction term of arbitration experience and average wages of athletic conference.

$$\text{Wage}_{it} = \beta_0 + \beta_1 \text{AC}_{it} + \beta_2 \text{EXP}_{it-1} + \beta_3 (\text{AC}_{it} * \text{EXP}_{it-1}) + d_i + t_t + \varepsilon_{it} \quad (1)$$

where  $\text{Wage}_{it}$  is log wage for teachers with Bachelor's degree with no experience of school district  $i$  at time  $t$ ,  $\text{AC}_{it}$  is the log average wage of district  $i$ 's athletic conference (excluding district  $i$ ) at time  $t$  and  $\text{EXP}_{it-1}$  represents direct and vicarious experiences that district  $i$  accumulated before time  $t$ . District- and time-specific effects were captured by  $d_i$  and  $t_t$ , which were controlled for by including district and year dummies. A high weight given to the interaction term suggests that the bargaining parties paid close attention to what happened in their athletic conference when they negotiated their own contract. The hypotheses suggest  $\beta_3 > 0$ .\* The wage and athletic conference average wage were measured in 1990 dollars.

Direct experience ( $\text{DEXP}_{it-1}$ ) was measured by the number of arbitration decisions that school district  $i$  had received before time  $t$  in which the athletic conference was used as a primary comparison group. The experience in school district  $i$ 's own athletic conference( $\text{ACEXP}_{it-1}$ ) was measured by the number of arbitration decisions using the athletic conference that had been made for other school districts in school district  $i$ 's own athletic conference before time  $t$ .

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\* Note that what was examined in the present study is organizational learning by *both* parties, not by each party. Since the weight given to the conference wage averages was estimated from bargaining outcomes voluntarily agreed upon, it was impossible to separate the effect of organizational learning by party.

The experience of similar school districts for school district  $i$  at time  $t$  ( $\text{SIZEXP}_{it-1}$ ) was measured by the weighted sum of arbitration decisions using the athletic conference that other school districts had received before time  $t$ . Size similarity between two school districts was calculated in the following way. First, the absolute difference in enrollment between two school districts was calculated. The absolute difference scores were then divided by the number of students enrolled in district  $i$ . Size similarity between two school districts was calculated by taking the inverses of the relative enrollment differences. To measure the experience of similarly sized school districts, the arbitration decisions using athletic conference in Wisconsin before time  $t$  were weighted by the size similarity between school district  $i$  and other districts and summed. A high score on  $\text{SIZEXP}_{it-1}$  means that many other school districts that were similar in size to school district  $i$  had received arbitration decisions using the athletic conference before time  $t$ .

The experience of geographically proximate school districts for school district  $i$  before time  $t$  ( $\text{GEOEXP}_{it-1}$ ) was calculated in a similar way. Geographical proximity was calculated as follows. First, the distance between two school districts was calculated by using the Haversine formula (Sinnott 1984) with the latitudes and longitudes of each school district, which formula gives the distance between two points on the great circle; geographical proximity between two school districts was calculated by taking the inverses of the distances. The experience of geographically proximate school districts was measured by weighting the arbitration decisions using athletic conference in Wisconsin before time  $t$  by the geographical proximity between school district  $i$  and other districts and summed. A high score on  $\text{GEOEXP}_{it-1}$  means that many school districts that were geographically proximate to school district  $i$  had received arbitration decisions using the athletic conference before time  $t$ .

I also examined whether the knowledge gained from experience depreciated over time. If knowledge depreciates, the bargaining parties will pay less attention to other

school districts in their own athletic conference over time. To test whether depreciation occurs or not, the following model was estimated.

$$\text{Wage}_{it} = \beta_0 + \beta_1 \text{AC}_{it} + \beta_2 \text{EXP}_{it-1} + \beta_3 (\text{AC}_{it} * \text{EXP}_{it-1}) + \beta_4 \text{TIME}_{it} + \beta_5 (\text{EXP}_{it-1} * \text{TIME}_{it}) + \beta_6 (\text{AC}_{it} * \text{TIME}_{it}) + \beta_7 (\text{AC}_{it} * \text{EXP}_{it-1} * \text{TIME}_{it}) + d_i + t_t + \varepsilon_{it}, \quad (2)$$

where  $\text{TIME}_{it}$  is the time trend since the previous arbitration decision. If depreciation occurs, we can expect  $\beta_7 < 0$ .

As control variables, I included in both models some other district characteristics that may influence teacher wages, such as the property wealth per student ( $\text{WEALTH}_{it}$ ), the local private sector log wage ( $\text{PRVTWAGE}_{it}$ ), and the local property tax rate ( $\text{TAX}_{it-1}$ ). The property wealth and the local private sector wage were measured in 1990 dollars. The property wealth was measured by one million dollars. The local property tax rate was lagged because it is usually determined after a collective agreement is reached (Olson and Rau, 1997).

I also included two weighted wages of other school districts in Wisconsin as control variables. First, the wages of other school districts at time  $t$  were weighted by the geographical proximity between school district  $i$  and other districts. The weighted wages ( $\text{GEOWAGE}_{it}$ ) was included in the wage equation to control for the possibility that the bargaining parties compared their wage with the wages of other school districts because of geographical proximity. Similarly, the average of the wages of other school districts weighted by size similarity ( $\text{SIZWAGE}_{it}$ ) was included to control for the possibility that the bargaining parties compared their wage with the wages of other school districts because of size similarity.

## V. Results

Table 1 reports the descriptive statistics and correlations for all variables. The first column of table 2 reports the results for experiential learning. As expected, the interaction term of direct experience and the conference wage average was positive and significant ( $b = .050$ ,  $p < .05$ ), providing support for the hypothesis 1. These results for experiential learning were not affected by adding measures for vicarious learning.

The results also show that the main effect of the conference wage averages was positive and significant ( $b = .579$ ,  $p < .01$ ). This suggests that the wage settlements in its own athletic conference affected a focal school district's wage even when the parties had not received an arbitration decision using the athletic conference. The main effect of direct experience was negative and significant ( $b = -.495$ ,  $p < .05$ ), suggesting that the number of arbitration decisions using athletic conference was associated with lower wage levels.

Columns two to four report the results for vicarious learning. Among them, only the interaction term of within-conference experience and the conference wage average was statistically significant, but the sign was negative ( $b = -.013$ ,  $p < .05$ ). Thus, the results did not support vicarious learning.

Table 3 tests whether the effect of direct experience depreciated over time. If depreciation were to occur, we would expect that the three-way interaction term would be negative. The three-way interaction term was positive and statistically insignificant, suggesting that the knowledge learned from direct experience did not depreciate over time.\*

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\* Following Baum and Ingram (Baum and Ingram, 1998; Ingram and Baum, 1997), I also discounted own experience and experience of other bargaining relationships with age of experience, age square, and square root of age. But, none of them affected the results.

Table 1 Means, Standard Deviations, and Correlations

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)
(1) Wage	9.819	.060					
(2) AC	9.818	.055	.889***				
(3) DEXP	.207	.484	.199***	.186***			
(4) ACEXP	1.593	2.510	.256***	.262***	.378***		
(5) GEOEXP	.952	.929	.533***	.559***	.401***	.620***	
(6) SIZEXP	.445	.627	.216***	.265***	.234***	.455***	.602***
(7) GEOPRX	.130	.025	.299***	.328***	-.033	-.136***	.152***
(8) SIZSIM	.059	.028	-.203***	-.176***	-.031	.013	-.019
(9) WEALTH	.201	.056	.021	.011	-.088***	-.232***	-.178***
(10) TAX <sub>t-1</sub>	.011	.180	.519***	.541***	.126***	.199***	.336***
(11) PRVTWAGE	.586	.169	.366***	.396***	-.054	-.154***	.022

\* &lt; .05, \*\* &lt; .01, \*\*\* &lt; .001

Table 1 Continued

	(6)	(7)	(8)	(9)	(10)
(1) Wage					
(2) AC					
(3) DEXP					
(4) ACEXP					
(5) GEOEXP					
(6) SIZEXP					
(7) GEOPRX	-.035				
(8) SIZSIM	.145***	-.098***			
(9) WEALTH	-.217***	.297***	-.208***		
(10) TAX <sub>t-1</sub>	.204***	.169***	-.145***	.228***	
(11) PRVTWAGE	-.110***	.626***	-.144***	.089***	.121***

\* &lt; .05, \*\* &lt; .01, \*\*\* &lt; .001

Table 2 OLS Results of Experiential and Vicarious Learning<sup>a</sup>

Variable	(1)	(2)	(3)	(4)
DEXPit-1 * ACit	.050** (.021)	.051** (.021)	.047** (.021)	.063*** (.022)
DEXPit-1	-.495** (.038)	-.502** (.211)	-.466** (.207)	-.621** (.212)
GEOEXPit-1 * ACit		.016 (.014)		
GEOEXPit-1		-.160 (.137)		
SIZEXPit-1 * ACit			-.011 (.019)	
SIZEXPit-1			.102 (.187)	
ACEXPit-1 * ACit				-.013** (.005)
ACEXPit-1				.123** (.050)
ACit	.579*** (.038)	.550*** (.044)	.583*** (.040)	.591*** (.039)
GEOWAGEit	.481 (.833)	.382 (.838)	.428 (.834)	.239 (.838)
SIZWAGEit	.008 (.024)	.012 (.024)	.007 (.024)	.009 (.024)
WEALTHit	.002 (.030)	-.013 (.031)	-.006 (.030)	.004 (.030)
TAXit-1	-.351 (.686)	-.284 (.686)	-.307 (.686)	-.268 (.685)
PRVTWAGEit	-.002 (.017)	-.001 (.017)	-.001 (.017)	.003 (.017)
District Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
R2	.916***	.916***	.916***	.916***
Adjusted R2	.901	.901	.901	.901

Table 3 OLS Results for Knowledge Depreciation<sup>a</sup>

Variable	b
DEXPit-1 * ACit*DTIMEit	.048 (.029)
DEXPit-1*DTIMEit	-.479 (.290)
DEXPit-1 * ACit	.047 (.031)
ACit*DTIMEit	-.063*** (.029)
DEXPit-1	-.467 (.308)
DTIMEit	.617*** (.288)
ACit	.586*** (.039)
GEOWAGEit	.396 (.839)
SIZWAGEit	.010 (.024)
WEALTHit	-.010 (.031)
TAXit-1	-.294 (.686)
PRVTWAGEit	-.002 (.017)
District Dummies	Yes
Year Dummies	Yes
R2	.916***
Adjusted R2	.901

<sup>a</sup>Dependent variable is log wage. Standard errors are in parentheses.

\*\*\* < .01, \*\* < .05, \* < .10

## VI. Conclusion

This study focuses on how parties learn about arbitrator behavior, specifically, what an arbitrator considers an appropriate comparison group. The results support the argument that direct experience is an important learning mechanism in interest arbitration. The influence of athletic conference wage averages on the wage in a focal school district increased as a focal school district received more arbitration awards in which the athletic conference was used as a primary comparison group.

However, the results did not provide support for vicarious learning. The effects of the experiences of geographically proximate and similarly sized school districts were not significant. The insignificant results may be accounted for by the fact that the set of year dummies effectively controls not only for time-specific effects, but also for the effect of general vicarious learning. During the period studied, 386 arbitration decisions were made and the athletic conference was used as a primary comparison group in more than 60% of the cases. It is reasonable to expect that the parties learned from the experience. However, I could not separate a general vicarious learning effect from time-specific effects since the overall cumulative experience was almost linearly related to the time trend.

The effect of the arbitration experience of a focal school district's own conference was significant but had the opposite sign. This finding is puzzling since the reciprocal nature of social comparison suggests that the within-conference experience could be an important source of vicarious learning. I speculate that the negative effect of the within-conference experience may reflect the unions' bargaining strategy. In Wisconsin, both bargaining parties have centralized organizations. However, teacher unions have been more sophisticated in their bargaining strategy and coordination. For instance, in 1984, the Wisconsin Education Association Council (WEAC), which is a state-level association of the National Education Association

(NEA), began to set a “wage target” and advised its locals to obtain at least the target wage or to use arbitration. Local unions that settled voluntarily for less than the “target wage” were subject to special dispensation (Babcock 1988).

As the results suggests, low wage school districts tended to use arbitration more often. Thus, the athletic conferences that have a large number of arbitration experiences are likely to be made up of low wage school districts. If this is the case, teacher unions may try to use wage comparison groups other than the athletic conference. The negative effect of within-conference experience may reflect teachers’ unions’ success in using this strategy.

Finally, I found no evidence for knowledge depreciation in this setting. Although we cannot draw strong inferences from insignificant results, I believe that the nature of the knowledge examined in the present study prevented depreciation in this setting. The information of interest, arbitrators’ choice of comparison groups, is very important in negotiation and arbitration, easily codified, and preserved by an outside agency. These factors are likely to prevent knowledge depreciation.

This study builds on previous arbitration literature by examining both experiential and vicarious learning. My results show that the bargaining parties learn about arbitrator behavior from direct experience. These findings are consistent with Farber and Katz’s (1979) theory of arbitration and previous empirical work by Olson and Rau (1997). However, my findings also suggest that drawing inferences from a relatively small number of the experience of other may be difficult.

## REFERENCES

- Abrahamson, Eric and Gregpry Fairchild. 1999. "Management fashion: Lifecycles, triggers, and collective learning processes." *Administrative Science Quarterly*, 44(4), 708-740.
- Adams, George W. 1981. "The Ontario experience with interest arbitration: Problems in detecting policy." *Relations Industrielles/Industrial Relations*, 36(1), 225-250.
- Adler, Paul S. and Kim B. Clark. 1991. "Behind the learning curve: A sketch of the learning process." *Management Science*, 37(3), 267-81.
- Argote, Linda. 1999. *Organizational learning: Creating, retaining and transferring knowledge*. Boston, MA: Kluwer Academic Publishers.
- Argote, Linda, Sara L. Beckman, and Dennis Epple. 1990. "The persistence and transfer of learning in industrial settings." *Management Science*, 36(2), 140-154.
- Argyris, Chris and Donald A. Schön. 1978. *Organizational learning*. Reading, Massachusetts: Addison-Wesley.
- Arthur, Jeffery B. and Christopher L. Huntley. 2005. "Ramping up the organizational learning curve: Assessing the impact of deliberate learning on organizational performance under gainsharing." *Academy of Management Journal*, 46(6), 1159-1170.
- Ashenfleter, Orley and Gordon B. Dahl. 2012. "Bargaining and the role of expert agents: An empirical study of final-offer arbitration." *The Review of Economics and Statistics*, 94(1), 116-132.
- Ashenfelter, Orley, James Dow and Daniel Gallagher. 1985. *Arbitration and negotiation behavior under an appellate system*. Unpublished paper, Princeton University.
- Bandura, Albert. 1977. *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

- Babcock, Linda C. (1988). "Negotiation under the treat of final offer arbitration." Diss., University of Wisconsin, Madison.
- Baum, Joel A. C. and Kristina B. Dahlin. 2007. "Aspiration performance and railroads' patterns of learning from train wrecks and crashes." *Organization Science*, 18(3), 368-385.
- Baum, Joel A. C. and Paul Ingram. 1998. "Survival enhancing learning in the Manhattan hotel industry, 1898-1980." *Management Science*, 44(7), 996-1016.
- Beckman, Christine M. and Pamela R. Haunschild. 2002. "Network learning: The effects of partners' heterogeneity of experience on corporate acquisitions." *Administrative Science Quarterly*, 47(1), 92-124.
- Besanko, David, Ulrich Doraszelski, Yaroslav Kryukov, and Mark Satterthwaite. 2010. "Learning-by-doing, organizational forgetting, and industry Dynamics." *Econometrica*, 78(2), 452-508.
- Bresman, Henrik. (2013). "Changing routines: A process model of vicarious group learning in pharmaceutical R&D." *Academy of Management Journal*, 56(1), 35-61.
- Caplow, Theodore. 1957. "Organizational size." *Administrative Science Quarterly*, 2(4), 484-505.
- Collions, James C. and Jerry I. Porras. 1994. *Built to last: Successful habits of visionary companies*. New York: Harper Business.
- Connel, Carol and Samuel Cohn. 1995. "Learning from other people's action: Environmental variation and diffusion in French coal mining strikes, 1890-1935." *American Journal of Sociology*, 101, 366-403.
- Crawford, Vincent P. 1979. "On compulsory-arbitration schemes." *Journal of Political Economy*, 87, 131-160.
- Cyert, Richard M. and James G. March. 1963. *A behavioral theory of the firm*. Englewood Cliff, New Jersey: Prentice-Hall.

- Darr, Eric D., Linda Argote and Dennis Epple. 1995. "The acquisition, transfer, and depreciation of knowledge in service organizations: Productivity in franchises." *Management Science*, 42, 1750-1762.
- Daughtrey, Greyson and John B. Woods. 1976. *Physical education and intramural programs: Organization and administration* (2nd Ed.). Philadelphia, PA: W. B. Saunders Company.
- Dell'omo, Gregory G. 1987. *Arbitration application of wage criteria under the Wisconsin police and firefighter arbitration act: An empirical analysis*. Diss., University of Wisconsin, Madison.
- Dell'omo, Gregory G. 1989. "Wage disputes in interest arbitration: Arbitrators weigh the criteria." *Arbitration Journal*, 44(2), 3-13.
- Denrell, Jerker. 2003. "Vicarious learning, undersampling of failure, and the myths of management." *Organization Science*, 14(3), 227-243.
- Dickinson, David L. 2004. "A comparison of conventional, final-offer, and "combined" arbitration for dispute resolution." *Industrial and Labor Relations Review* 57(2), 288-301.
- Dickinson, David L. 2006. "The chilling effect of optimism: The case of final offer arbitration." *Journal of Socio-Economics* 35, 7-30.
- DiMaggio, Paul J. and Walter W. Powell. 1983. "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields." *American Sociological Review*, 48(2), 147-160.
- Daughtrey, Greson and John B. Woods. 1976. *Physical education and intramural programs: Organization and administration* (2nd Ed.). Philadelphia, P A: W. B. Saunders Company.
- Epple, Dennis, Linda Argote and Kenneth Murphy. 1996. "An empirical investigation of the microstructure of knowledge acquisition and transfer through learning by doing." *Operation Research*, 44, 77-86.

- Farber, Henry S. and Max H. Bazerman. 1986. "The general basis of arbitration behavior: An empirical analysis of conventional and final-offer arbitration." *Econometrica*, 54, 1503-1528.
- Farber, Henry S. and Harry C. Katz. 1979. "Interest arbitration, outcomes, and the incentive to bargain." *Industrial and Labor Relations Review*, 33(1), 55-63.
- Festinger, Leon. 1954. "A theory of social comparison process." *Human Relations*, 7(2), 117-140.
- Greve, Henrich R. 1997. "Branch systems and nonlocal learning in populations." In A. S. Miner & P. Anderson (Eds.), *Advances in strategic management: population level learning and industry change* (pp. 57-80). Greenwich, CT: JAI Press.
- Halm, Francis P. 1985. "Athletic conference: The question of comparability." Unpublished paper, Madison, Wisconsin: Wisconsin Public Employer Relations Association.
- Hannan, Michael T. and John Freeman. 1977. "The population ecology of organizations." *American Journal of Sociology*, 83(5), 929-964.
- Haveman, Heather A. 1993. "Follow the leader: Mimetic isomorphism and entry into new markets." *Administrative Science Quarterly*, 38(4), 593-627.
- Haunschild, Pamela R. and Bilian N. Sullivan. 2002. "Learning from complexity: Effects of prior accidents and incidents on Airlines' learning." *Administrative Science Quarterly*, 47(4), 609-43.
- Hirsch, Barry T. and Cliford B. Donn. 1982. "Arbitration and the incentive to bargain: The role of expectations and costs." *Journal of Labor Research*, 3(1), 55-68.
- Ingram, Paul L. and Joel A. C. Baum. 1997. "Opportunity and constraint: Organizations' learning from the operating and competitive experience of industry." *Strategic Management Journal*, 18, 75-98.

- Irwin, Douglas A. and Peter J. Klenow. 1994. "Learning-by-doing spillovers in the semiconductor industry." *Journal of Political Economy*, 102, 1200-1227.
- Johnson, Susan J. T. 2010. "First contract arbitration: Effects on bargaining and work stoppages." *Industrial and Labor Relations Review*, 63(4), 585-605.
- Kenosha Unified School District v. Kenosha Education Association, No.29943, 1983, June 8.
- Kim, Ji-Yub Jay and Anne S. Miner. 2007. "Vicarious learning from the failure and near-failures of others: Evidence from the U.S. commercial banking industry." *Academy of Management Journal*, 50(3), 687-714.
- Kleiner, Morris M., Jerry Nickelsburg and Adam M. Pilarski. 2012. "Organizational and individual learning and forgetting." *Industrial and Labor Relations Review*, 65(1), 68-81.
- Kochan, Thomas, David B. Lipsky, Mary Newhart and Alan Benson. 2010. "The long haul effects of interest arbitration: The case of New York State's Taylor law." *Industrial and Labor Relations Review*, 63(4), 565-84.
- La Crosse Education Association v. SchoolDistrictofLaCrosse, No.28037, 1983, Jan. 19.
- Lapre, Michael A., Anit S. Mukherjee and Luk N. van Wassenhove. 2000. "Behind the learning curve: Linking learning activities to waste reduction." *Management Science*, 46(5), 597-611.
- Levinthal, Daniel A. and James G. March. 1993. "The myopia of learning." *Strategic Management Journal*, 14, 95-112.
- Lipsky, David B. and Herry C. Katz. 2006. "Alternative approach to interest arbitration: Lessons from New York City." *Public Personnel Management*, 35(4), 266-81.

- Madsen, Peter M. and Vinit Desai. 2010. "Failing to learn? The effects of failure and success on organizational learning in the global orbital launch vehicle industry." *Academy of Management Journal*, 53(3), 451-76.
- March, James G. and Hohan P. Olsen. 1975. "The uncertainty of the past: Organizational learning under ambiguity." *European Journal of Political Research*, 3(2), 147-171.
- March, James G., Lee S. Sproull and Michal Tamuz. 1991. "Learning from samples of one or fewer." *Organization Science*, 2(1), 1-13.
- Mezias, Stephen J. and Theresa K. Lant. 1994. "Mimetic learning and the evolution of organizational populations." In J. V. C. Baum & J. V. Singh (Eds.), *Evolutional dynamics of organizations* (pp. 179-198). New York: Oxford University Press.
- Muehlfelf, Katrin, Padma Rao Sahib and Arjen van Witteloostuijn. 2012. "A contextual theory of organizational learning from failure and successes: A study of acquisition completion in the global newspaper industry, 1981-2008." *Strategic Management Journal*, 33, 938-964.
- Nelson, Nels E. and Sung Min Kim. 2008. "A model of arbitral decision making: Facts, weights, and decision elements." *Industrial Relations* 47(2): 266-283.
- Olson, Craig A. and Paul Jarley. 1991. "Arbitrator decisions in Wisconsin teacher wage disputes." *Industrial and Labor Relations Review*, 44, 536-547.
- Olson, Craig A. and Barbara L. Rau. 1997. "Learning from interest arbitration: The next round." *Industrial and Labor Relations Review*, 50, 237-251.
- Penrose, Edith T. 1959. *The theory of the growth of the firm*. WhitePlains, New York:M.E.Sharpe.
- Perkins, Susan E. 2014. "When does prior experience pay? Institutional experience and the multinational corporation." *Administrative Science Quarterly*, 59(1), 145-181.

- Peters, Thomas J. and Robert H. Waterman Jr. 1982. *In Search of Excellence: Lessons from America's best-run companies*. New York: Harper & Row.
- Posthuma, Richard A., James B. Dworkin and Maris S. Swift. 2000. "Arbitrator acceptability: Does justice matter?" *Industrial Relations* 39(2), 313-35.
- Ross, Arthur M. 1956. *Trade union wage policy*. Berkeley, California: University of California Press.
- Sinnott, Roger W. 1984. "Virtues of the Haversine." *Sky and Telescope*, 68, 159.
- Thompson, Peter. 2012. "The relationship between unit cost and cumulative quantity and the evidence for organizational learning-by-doing." *Journal of Economic Perspective*, 26(3), 203-224.
- Weick, Karl. 1979. *The social psychology of organizing*. Reading, MA: Addison-Wesley Pub. Co.
- Zollo, Maurizio and Sidney G. Winter. 2002. "Deliberate learning and the evolution of dynamic capabilities." *Organization Science* 13(3), 339-51.

## 이익중재에서의 조직학습

박 희 준\*

### 요 약

노사관계에서 이익중재는 파업의 대안으로 사용되는 제도로서 노사가 단체교섭에서 자율적으로 합의에 이르지 못할 경우 제3자인 중재자가 최종결정권을 가지는 제도이다. 따라서 이익중재 하에서의 단체교섭의 과정이나 결과는 제3자인 중재자의 공정성에 대한 인식에 의해 크게 좌우된다. 하지만 단체교섭 당사자인 노동조합과 사용자가 이러한 중재자의 공정성 기준에 대해 어떻게 학습하는지에 대한 연구는 매우 부족한 것이 현실이다. 본 연구는 1979~1980년에서 1986~1987년 사이의 미국 위스콘신주 교사노동조합과 사용자의 단체교섭 자료를 사용하여 노동조합과 사용자가 중재자가 사용하는 임금비교집단에 대해 어떻게 학습하는가 분석하였다. 분석결과 중재자가 사용하는 임금비교집단에 대한 학습에 있어서 직접 중재를 받아본 경험이 중요한 역할을 하였으며, 이러한 직접적인 경험을 통해 학습한 지식은 시간이 지나도 유지되었다. 하지만 다른 교섭단위의 중재 경험은 중재자의 임금비교집단에 대한 교섭당사자들의 학습에 영향을 미치지 않는 것으로 나타났다.

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## ORGANIZATIONAL LEARNING UNDER INTEREST ARBITRATION

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### ABSTRACT

Bargaining behaviors and outcomes under an arbitration system are shaped by the parties' expectations about what arbitrators think is a fair outcome. However, few previous studies have investigated how the parties form such expectations. The present study focuses on whether the bargaining parties learn from their own experience and experience of others about what arbitrators think is an appropriate wage comparison group. This study also examines whether such knowledge depreciates over time. Using data from Wisconsin teacher negotiation during the period between the school years of 1979-80 and 1986-87, I found that the parties learned from direct experience. The new information acquired from direct experience did not depreciate overtime. However, the results did not provide support for vicarious learning.

Key words: Interest arbitration, wage comparison group, organizational learning

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