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THE SALES FORCE TECHNOLOGY–PERFORMANCE CHAIN:
THE ROLE OF ADAPTIVE SELLING AND EFFORT

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Firms continue to struggle with the implementation of sales force technology tools and the role they play in sales representative performance. This research expands previous literature in the area of sales force automation (SFA) and customer relationship management (CRM) by looking at the consequences *after* technology adoption by a sales force. Data were gathered from three sources to include 662 sales representatives, 60 sales managers, and firm archival data. Using structural equation modeling, our findings indicate that SFA usage has a direct impact on effort, thereby reducing number of hours worked, and CRM usage has a direct positive impact on adaptive selling behaviors. Moreover, experience moderates the relationship between CRM usage and adaptive selling. Discussion, limitations, and directions for future research are also discussed.

As competition increases and technology advances, organizations continue to seek ways to adjust to changing business environments. This is especially true in the personal selling context where salespeople are recognized as the boundary spanners and are expected to be relationship managers (Kotler 1984). Today's salesperson is constrained to do more in less time, and technological advancements have become an integral part of the personal selling and sales management process. Foreseeing this changing environment, Leigh and Tanner (2004) stressed the necessity for sales organizations to focus on technology-related strategies, business processes, and applications, and called on sales researchers to put forth theoretical models and empirical studies investigating these emerging issues.

Notably, sales force technology usage has changed the methods of selling. Salespeople are no longer selling just a "product"; instead, they are providing a valuable "solution" to customer problems. Anderson and Dubinsky (2004) discussed the concept of consultative selling, where a salesperson acts as an expert and provides customized solutions. This role requires salespeople to develop a technological orientation to access, analyze, and communicate information in order to establish a strong relationship with customers (Hunter and

Perreault 2007). Sales technology enables salespeople answering the queries of customers to effectively provide competent solutions. This can lead to strong relationships between a salesperson and a customer. Thus, technology tools are used not only for smoothing the work process but they also have strategic utilizations.

To this point, numerous models investigating technology acceptance have been postulated in the literature (Compeau, Higgins, and Huff 1999; Davis, Bagozzi, and Warshaw 1989; Venkatesh and Davis 2000; Venkatesh et al. 2003). These studies focus mainly on finding and examining the variables influencing salespeople's motivation, or attitudes to adopt technology (Avlonitis and Panagopoulos 2005; Jones, Sundaram, and Chin 2002; Keillor, Barshaw, and Pettijohn 1997; Morgan and Inks 2001; Pullig, Maxham, and Hair 2002; Schillewaert et al. 2005; Speier and Venkatesh 2002). Notably, most existing research has focused on technology adoption with a few notable exceptions. For example, Ahearne et al. (2008) and Hunter and Perreault (2007) investigated the *mediating* effects of relationship-forging tasks, and Ahearne, Jelinek, and Rapp (2005) proposed *moderating* effects of training and support on links between different types of sales technology use (adoption) and sales performance. However, there is still a need to investigate the links between technology use and performance (Sundaram et al. 2007).

Within this study, we make two extensions to the prior research. First, we shift the focus from technology adoption to technology usage and consequence (Hunter and Perreault 2007; Sundaram et al. 2007). The rationale for this diversion is that the success of technology acceptance resides "not simply in whether or not salespeople adopt technology, but whether or not adoption (i.e. use) actually improves performance" (Ahearne, Jelinek, and Rapp 2005, p. 380). For this purpose, we ground our arguments in the technology-to-performance

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chain (TPC) model, which explores the link between technology and an individual's performance and postulates that "performance impacts will depend increasingly upon task–technology fit rather than utilization" (Goodhue and Thompson 1995, p. 216).

Second, this research focuses on the multidimensionality of the technology usage construct. Hunter and Perreault (2006; 2007) made a distinction between sales force automation (SFA) and customer relationship management (CRM) tools and reinvigorated the issue of sales technology and its effectiveness. We extend that distinction. They suggested that SFA and CRM technologies should be considered as two different sales technology tools, and that "different use of technology have differential effects on various aspects of performance . . . thus, how a sales representative uses technology and on which behavioral tasks (work processes) matters" (Hunter and Perreault 2007, p. 30). Aligning with this logic, we perceive this new research direction as a valuable addition to an already established and rich literature of sales technology.

The purpose of this research study, therefore, is to expand research with regard to the different dimensions of technology usage by investigating their impact on sales representative's behavior that influences performance. We also investigate the role of salesperson experience within this model.

THEORETICAL DEVELOPMENT

As mentioned previously, examining the relationship between technology acceptance and salesperson performance has only recently gained mainstream attention; however, studies investigating this link report positive findings. For example, researchers have documented that the growing use of technology tools influences salesperson performance positively (Ahearne, Srinivasan, and Weinstein 2004) by enhancing sales efficiency and sales effectiveness (Ahearne, Jelinek, and Rapp 2005). It has been argued that increasing the use of technology encourages salesperson knowledge attainment, which further improves his or her performance (Ko and Dennis 2004). More recently, Hunter and Perreault (2006) suggest that salespeople's technology orientation influences their internal role performance. In another study, Sundaram et al. (2007) theorize that technology use and technology impact on performance are directly proportional to each other. They provide empirical evidence suggesting that the extent to which salespeople use technology may improve overall sales performance.

Bringing new insights into this subject, Hunter and Perreault (2007) propose new behavioral mechanisms that relate to sales representative performance. Specifically, they suggest that through relationship-forging tasks, salespeople are able to exploit different dimensions of technology utilization (i.e., accessing, analyzing, and communicating information), which in turn, affect different facets of sales performance.

Our research builds on the logic presented by previous researchers regarding the consideration of different dimensions of technology use and their differential effects on salespeople's behavior. To provide theoretical grounding, we base our conceptual framework on the TPC model proposed by Goodhue and Thompson (1995). The TPC model emphasizes that in order to see a positive link between technology and performance, "the technology *must be utilized,* and the technology *must be a good fit with the tasks it supports"* (Goodhue and Thompson 1995, p. 213, emphasis in original). Notably, tasks are viewed as activities performed by individuals to achieve outputs and technologies are tools that help them to perform these tasks. The use of certain applications of technology depends on the specific characteristics of the assigned task. Within the sales context, salespeople carry out operational (e.g., learning about existing and new products, generating automated reports) as well as strategic (e.g., identifying most important customers, preparing sales presentations based on customers' specific needs) activities and need different tools to help perform these activities. Moreover, the TPC model highlights the importance of an individual's characteristics (e.g., training or experience), suggesting their impact on how "easily and well" one will use the technology tools (Goodhue and Thompson 1995, p. 216). The current research contributes to this idea by suggesting that the effect of technology use on salespeople's behavior will depend upon whether they are using the technology for operational purpose (i.e., SFA) or for strategic purpose (i.e., CRM). Also, our framework incorporates salesperson experience to assess the influence of individual characteristics.

Dimensions of Sales Technology Usage

In a broad sense, technology is defined as "an ability to act, a competence to perform, translating materials, energy and information in one set of states into another, more highly valued set of states" (Metcalfe 1995, p. 34). In a sales research domain, sales technology describes information technologies aiding or enabling the sales task performance (Hunter and Perreault 2007). In the past, scholars from different research streams have raised the issue concerning the different dimensions and aspects of technology use and proposed several frameworks that support this concept (Goodhue and Thompson 1995; Orlikowski 1992). Although previous researchers build their arguments on different concepts, in essence, they all agree there are different aspects and dimensions of technology use.

Considering the fact that different dimensions of technology use should be employed for different purposes, sales managers must develop and support an environment where salespeople use technology in accordance with the required behavior. For example, salespeople involved in operational activities such as exchanging information with colleagues

and managers, taking or tracking inventory levels, or learning about existing, new, and competitive products will employ different technology tools as compared to situations where they execute strategic activities such as identifying potential customers, identifying the most important customers from the list of current customers, or working on improvement of sales presentation skills. Thus, it will be beneficial for sales managers, as well as for salespeople, to understand how employing different technology tools will influence performance-enhancing behaviors (Hunter and Perreault 2007). Accordingly, we view the use of SFA and the use of CRM as two dimensions of sales technology based on their level of specificity for influencing different salespersons' behaviors. SFA usage, with an *operational orientation,* includes the utilization of technological tools supporting the routine sales functions (Jacobs 2006). CRM usage, with a *strategic orientation,* includes methods and employing technology tools that help salespeople develop sales strategies (Rigby and Ledingham 2004). Importantly, both the routine sales functions and strategic sales activities that a salesperson engages in can develop, sustain, and strengthen customer relationships.

Use of SFA Technology

Hunter and Perreault suggest that SFA technology includes "tools that are intended to make repetitive (administrative) tasks more efficient" (2007, p. 17). Highlighting its potential benefits, previous research views SFA use as a competitive equivalence (Morgan and Inks 2001) and suggests that it enhances the "precision" of salespeople's activities (Honeycutt et al. 2005) by providing fast and reliable information flow among customers, salespeople, and firms (Speier and Venkatesh 2002). Sales managers and salespeople alike identify SFA as a tool to enhance efficiency (Erffmeyer and Johnson 2001) and to improve productivity (Engle and Barnes 2000; Pullig, Maxham, and Hair 2002). SFA tools assist with routine tasks, allow salespeople to focus on relationship-oriented activities, and free up time for more customer-centric tasks (Cotteleer, Inderrieden, and Lee 2006).

To attain the advantages of SFA, salespeople need to understand the specific purpose of using SFA. Keeping this in mind, we adapt the Rivers and Dart's conceptualization of SFA that describes it as transforming "manual sales activities to electronic processes through the use of various combinations of hardware and software applications" (1999, p. 59). We view SFA as a tool that converts repetitive and routine manual processes to automated processes, and assists salespeople trying to operate in an efficient and timely manner. Examples of SFA tools could include programs such as quarterly automated sales reports and calendaring tools. The domain for SFA applications includes the attainment and storage of information. However, the information being utilized, analyzed, and obtained with the help of SFA tools is unlike that from CRM tools.

Use of CRM Technology

Unlike the routine purpose of SFA applications, CRM technology usage focuses on relationship and strategy building (Rigby, Reichheld, and Schefter 2002). Day views CRM as "a cross-functional process for achieving a continuing dialogue with customers" (2001, p. 1). CRM is also described as a "business strategy that includes information technology to provide an enterprise with a comprehensive, reliable, and integrated view of its customer base" (Zikmund, McLeod, and Gilbert 2003, p. 3). In essence, salespeople use CRM technology tools for developing and managing customer relationships (Yin, Anderson, and Swaminathan 2004). This characterization is aligned with the analysis aspect of sales technology use suggested by Hunter and Perreault (2007). They defined it as the degree to which salespeople depend on technology "to study and synthesize data and understand the implications of data relevant to the demands of their sales jobs" (Hunter and Perreault 2007, p. 21).

Outlining the functionality of sales technology, Widmier, Jackson, and McCabe (2002) postulate different sales functions (e.g., presentations, informing, communications, sales reporting) that can be supported by sales technology. Importantly, these functions of sales technology can be separated on the basis of whether their strategic orientation is "customer" centric or "back-office" centric (Geiger and Turley 2006). We characterize the use of CRM as utilizing customer-centric technology tools that help salespeople formulate strategies to achieve effectiveness in their selling methods. Therefore, the optimal utilization of CRM tools will depend on how well salespeople assimilate the information obtained through data patterns in their job-specific behaviors. We believe that the use of CRM technology tools not only accelerates the regular sales operation, but also aids salespeople in developing and managing long-term customer relationships.

CONCEPTUAL MODEL DEVELOPMENT

In light of the above-mentioned arguments, we propose a model (Figure 1) examining the effects of SFA and CRM on salespeople's behaviors after technology adoption and how these behaviors can influence salesperson performance.

Effort

A salesperson's effort, in general, can be characterized as "persistence—in terms of the length of time devoted to work and continuing to try in the face of failure" (Sujan, Weitz, and Kumar 1994, p. 40), and it can be assessed via a litany

Figure 1
Hypothesized Model

Technology Use   Salesperson Behaviors   Outcomes
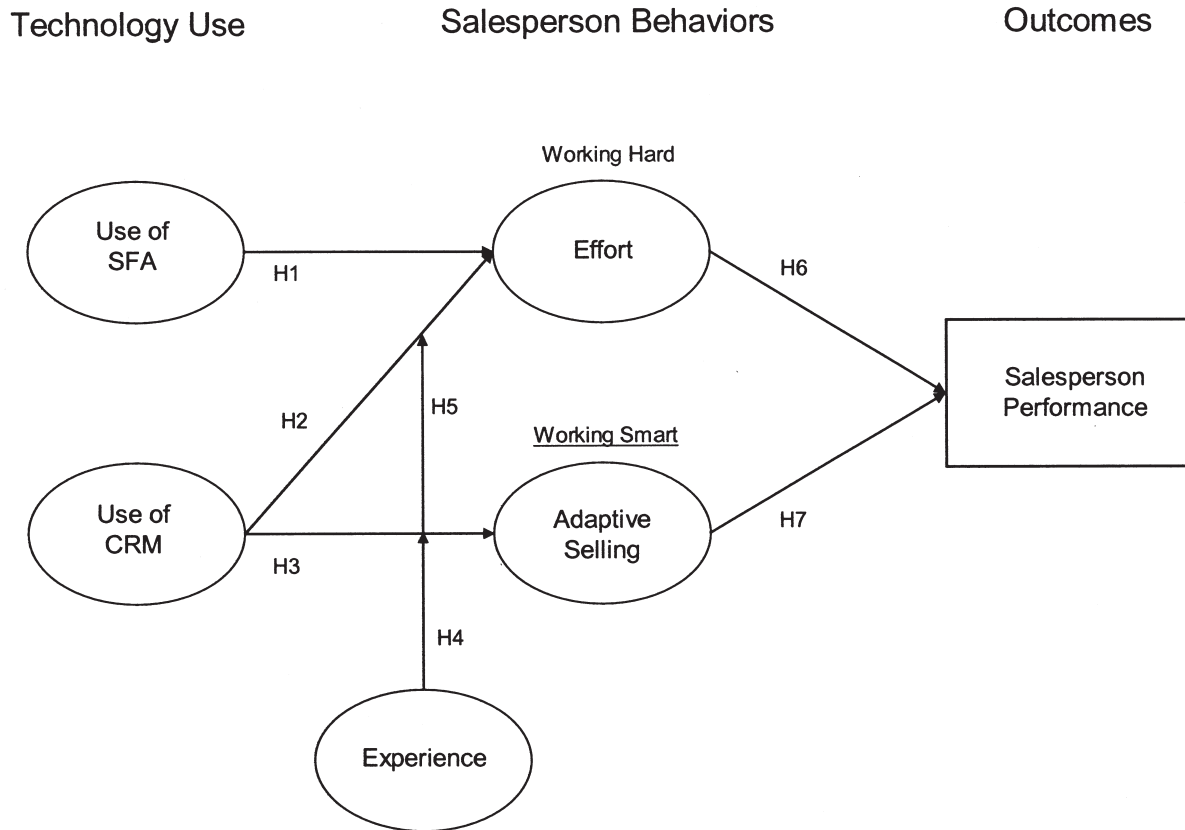
of measures. Specifically, "the duration of time spent working and the intensity of work activities" are viewed as components of effort (Brown and Peterson 1994, p. 71); other research studies measure effort by the number of hours invested by salespeople to accomplish their sales goals or the number of sales calls made (e.g., Rapp et al. 2006).

Past scholars have conceptualized that the utilization of technology tools improves salesperson efficiency (Keillor, Barshaw, and Pettijohn 1997; Pullig, Maxham, and Hair 2002) and that technology assists salespeople in formulating a professional sales encounter (Marshall, Moncrief, and Lassk 1999). Salespeople can maintain direct contact, even with remote customers, through e-mails and cell phones, thus saving travel hours. They can receive and manage orders from customers in an easy, timely fashion. Various SFA applications (e.g., calendaring; routing tables) inject activeness in salespeople's typical sales routines and reduce downtime.

Salespeople, in today's competitive environment, face a great deal of data that include information about distributors, dealers, retailers, and ultimately, the end customer. In addition to this, salespeople need to keep track of competitor's activities as well as product market situations. Notably, SFA

tools provide answers to salespeople in such complex data utilization and management scenarios. Different application tools, spreadsheets, Web browsers, inventory management software, and other database software enable salespeople to manage the records of products, competitors, and customers in timely manner. Hence, salespeople using SFA tools will be more organized and able to complete their schedules on time (Ahearne, Jelinek, and Rapp 2005).

One key representation of salespeople's efforts to realize their job objectives is the activity through which they complete their tasks (Brown and Peterson 1994). The use of SFA reduces "the amount of time spent on such activities as managing contacts, scheduling sales calls, developing sales plans, and planning sales routes" (Widmier, Jackson, and McCabe 2002, p. 190). Also, salespeople using SFA tools can cut down work hours doing paperwork and other reporting-related tasks (Colombo 1994; Parathasarathy and Sohi 1997). Importantly, these administrative tasks (e.g., sales reporting) are non-customer-centric activities (Geiger and Turley 2006); however, salespeople spend many hours completing them. Thus, reductions in such activities, with the help of SFA, will provide salespeople with an opportunity to reduce their working hours. Formally stated,

Hypothesis 1: Relative to salespeople reporting lower use of SFA, salespeople reporting higher use of SFA will report fewer hours of work.

Underlining the importance of CRM usage, Ahearne, Jelinek, and Rapp (2005) argued that such technology tools aid salespeople by managing information about a larger number of customers. Salespeople equipped with such valuable information are able to relate to customers without as much difficulty and can be more responsive to critical issues, thereby shortening the duration of each sales encounter. They will also complete tasks with less effort (Ahearne, Jelinek, and Rapp 2005). Mostly, CRM tools make customers' cross-referencing possible among different departments within an organization that can generate more sales potential and reduce efforts by evading multiple attempts on the same prospective clients (Widmier, Jackson, and McCabe 2002). Moreover, the use of CRM tools will ease the processes of presale planning activities and improve the accuracy of sales forecasts, speeding up the overall sales process (Hunter and Perreault 2006).

Parallel to this thought, it is pragmatic to think that salespeople using CRM tools will not find examining customer data to be an overly complex and time-consuming process. Moreover, they can promptly focus on vital information, which, in turn, enables them to develop winning strategies in shorter time. We believe that salespeople equipped with CRM technology will be able to conserve their efforts by speeding the process of strategy development. CRM use will help salespeople configure product offerings per customer stipulations without showing extra efforts (Widmier, Jackson, and McCabe 2002). Under these circumstances, salespeople will be able to decrease their efforts by investing less time in the formulation of customer relationship strategies, reducing backorders, and lessening the number of calls required to finalize a sale (Columbo 1994; Thetgyi 2000). Based on this, we hypothesize:

Hypothesis 2: Relative to salespeople reporting lower use of CRM, salespeople reporting higher use of CRM will report fewer hours of work.

Adaptive Selling

Adaptive selling is defined as "engaging in planning to determine the suitability of sales behaviors and activities that will be undertaken, the capacity to engage in a wide range of selling behaviors and activities, and the alteration of sales behaviors and activities in keeping with situational considerations" (Sujan, Weitz, and Kumar 1994, p. 40). In more general terms, adaptive selling can be defined as an approach to personal selling in which selling behaviors are altered during the sales interaction or across customer interactions, based on information about a customer and nature of the selling situation.

Acquisition, analysis, and use of customer information are particularly important for salespeople in demonstrating adaptive selling behaviors (Weitz, Sujan, and Sujan 1986). Moreover, if salespeople have precise customer information, they will be more capable of practicing such behaviors (Hunter and Perreault 2006). CRM tools can also aid salespeople in tracking customer purchase patterns and enabling them to recognize potentially viable customers. Salespeople, with the help of CRM technology, can obtain critical customer information to successfully plan an effective sales encounter (Ahearne et al. 2008). CRM tools will be useful for keeping salespeople informed as well as for developing, implementing, or revising sales planning. Such customer database systems provide opportunities to meticulously research customers and design their sales presentations according to particular customer needs and wants (Marshall, Moncrief, and Lassk 1999). Equipped with sound customer information, salespeople will better anticipate customer responses, prepare appropriate ways to meet customer needs, and overcome customer objections. We propose that CRM tools provide access to customer information that enables salespeople to improve or enhance their adaptive selling skills. Based on this argument, we hypothesize:

Hypothesis 3: Salespeople's use of the CRM technology will be positively related with their adaptive selling behaviors.

Experience as a Moderator

Salesperson's experience has been defined as a composite of three different areas: the employee's general sales experience, the amount of time spent working with their current company, and the time spent in their territory (Rapp et al. 2006). Previous studies document the positive relationship of experience with different individual outcomes. For example, individual's performance adaptability has been associated positively with greater amounts of relevant work experience (Pulakos et al. 2000). It has been argued that individuals seeking knowledge usually carry dissimilar wants and expectations (Markus 2001). This idea is especially applicable in a personal selling context, where no single formula or approach can guarantee success of every salesperson. Salespeople with different breadth and depth of experience will have different abilities and expectations. Within this research study, we suggest that less-experienced salespeople, even if they use sales technology tools (i.e., SFA and CRM), will be less likely to exploit such tools in a better way, relative to more experienced salespeople. Importantly, our research differs from the previous work of Ko and Dennis (2004) in that we examine different dimensions of technology use as well as behavioral outcomes of the technology/experience interaction rather than outcome-based performance. Thus, our hypotheses differ according to our proposed arguments.

Sales researchers agree that the uses of CRM technology tools are essential for making customer alliances; however, individual characteristics can affect this process (Jones, Sundaram, and Chin 2002). Because CRM is used in crafting customer relationship strategies, salespeople's experience will play a critical role in the relationship between CRM utilization and adaptive selling behaviors. CRM will provide valuable customer information; however, to be successful in utilizing such information, salespeople need to have a "deep base of organizational, contextual, and domain knowledge" (Ko and Dennis 2004, p. 313) and be well versed in handling difficult objections. Salespeople with relatively less experience will have had less exposure to the capabilities of CRM tools, and a lower level of understanding about adaptive selling. With the lack of knowledge regarding various tasks and selling situations, less-experienced salespeople will be less capable of exploiting the rich data available in a CRM repository. Experienced salespeople are more likely to maintain focus on the task-related activities, identify and realize the link between CRM tools utilization and adaptive selling behaviors, and smartly engage in activities relevant to task completion. To sum, we argue that more-experienced salespeople will employ information toward formulating plans in a better way that helps them to practice adaptive selling than those salespeople with less experience. Based on these arguments, we propose that

Hypothesis 4: The relationship between use of CRM and adaptive selling will be more positive for employees who report higher levels of experience, as compared to those who report lower levels of experience.

In the case of technology use, it has been argued that the influence of technology is moderated by contextual variables (Orlikowski 1992). It seems especially true in a situation where technology is being used as a tool to formulate strategies or as a medium to support routine tasks. Experienced salespeople are more likely to have created an optimal schedule (i.e., necessary efforts required to accomplish maximum output), and given the strategic utilization of CRM, they can further cut down their efforts to achieve sales objectives. Consistent with the arguments of Hunter and Perreault (2006), we argue that more-experienced salespeople have learned the necessary skills to execute different activities. We also suggest that more-experienced salespeople have discovered ways to reduce their levels of effort while maintaining their higher levels of performance, relative to those with less experience. Importantly, for those who have already adopted technology, more-experienced sales representatives will feel the greatest influence on their behavioral outcomes. Formally stated,

Hypothesis 5: The relationship between use of CRM and effort will be more negative for employees who report higher

levels of experience, as compared to those who report lower levels of experience.

Salesperson Performance

In a general sense, job performance is an outcome of effort and strategy (Bandura 2002). Sales literature has recognized the significance of salesperson efforts in different theoretical frameworks of performance (Walker, Churchill, and Ford 1977) and proposed a significant positive relationship between effort and adaptive selling behaviors and salesperson's productivity (Sujan, Weitz, and Sujan 1988). Previous literature enjoys a relatively wide consensus about the critical role of effort and adaptability in achieving high performance objectives. To this point, numerous researchers have examined the links between performance and adaptive selling and effort (Anglin, Stohlman, and Gentry 1990; Brown and Peterson 1994; Goolsby, Lagace, and Boolrom 1992; Holmes and Srivastava 2002; Predmore and Bonnice 1994; Sujan, Weitz, and Kumar 1994). Within this research study, we revisit these links and offer that, parallel to previous findings, both salesperson behaviors of adaptive selling and effort will demonstrate unique positive relationships with their performance.

Hypothesis 6: Salesperson effort will be positively related with salesperson performance.

Hypothesis 7: Salesperson adaptive selling behaviors will be positively related with salesperson performance.

RESEARCH METHOD

Sample

Our sample was drawn from the human health-care segment of a medium-sized pharmaceutical company. Data were collected from three separate sources in the form of salesperson surveys, manager surveys, and archival job performance data from company records. Sales representatives in this firm were responsible for marketing directly to physicians within a specific geographical area. All sales representatives were responsible for a particular portfolio of products and completed training for each product line.

In sum, 900 sales representatives of the human health-care division of the company were contacted for this study. Usable survey responses were obtained from 662 (74 percent) of the representatives and from 60 different sales managers. There was an average of 11 sales representatives per manager. Respondents completed and returned a questionnaire mailed directly to them by the researchers. Management's strong endorsement of questionnaire completion via e-mail and telephone, coupled with two waves of mailings, led to the high

response rate. The sample was 40 percent male, the average age was 34.9 (standard deviation [SD] = 4.6), and 91 percent reported their ethnicity as Caucasian.

Measures

Use of SFA

SFA usage was assessed by the sales representative using a four-item scale. The scale asked sales representatives the amount of usage on four specific SFA applications. All four items were representative of tasks that helped salespeople streamline or automate some of the basic processes and functions of the sales tasks. Item responses were anchored by (1) "I do not use this technology at all" and (7) "I use this technology to a great extent." The scale demonstrated acceptable reliability (α = 0.72). See the Appendix for a complete list of scale items.

Use of CRM

Similar to the above, CRM usage was assessed by asking the salesperson four questions regarding his or her use of technologies that helped manage customer relationships. These questions were specific to the software and database applications that the firm had in place. Again, item responses were anchored by (1) "I do not use this technology at all" and (7) "I use this technology to a great extent." The scale demonstrated acceptable reliability (α = 0.75).

Effort

Salesperson effort was measured as a self-report item assessing average number of hours worked per week. Although not an ideal evaluation tool, this approach is similar to other research that has demonstrated that self-report evaluations are often representative of objective measures of evaluations (Sharma, Rich, and Levy 2004).

Adaptive Selling

Adaptive selling was measured using a shortened four-item scale stemming from the adaptive selling scale originally developed by Spiro and Weitz (1990). Items were adapted slightly to fit the specific selling context. This measure was assessed by the sales manager and exhibited strong reliability (α = 0.90). In this setting, sales managers have frequent contact with their salespeople. By meeting with sales representatives, conducting customer follow-up visits, and participating in ride-alongs, we argue that the sales manager can observe the behavior of the salesperson, in this circumstance, adaptive selling tendencies.

Experience

Experience was a composite measure consisting of three separate measures of sales experience. Sales representatives were questioned about the length of time they had worked in their territory, for their company, and in a sales field. These scores were each z-scored and then averaged to form an overall experience index.

Salesperson Performance

We operationalized salesperson performance as the outcome-based measure of percentage of quota. Percentage of quota achieved is defined as the total sales brought to a close by a salesperson relative to the sales organization's sales targets for that individual. Percent of quota, or total sales divided by expected sales target, is a strong measure of sales representative performance because it controls for some potential contaminating factors such as territory size (Churchill et al. 1985). Sales representatives' quotas are annually set by a consulting company, in conjunction with corporate sales management, and are based on market information and company records. Quotas are discussed with sales representatives to ensure that the representatives understand the methods used to set their annual quotas.

Analytical Strategy

We analyzed our data using a covariance-based structural equation modeling package, AMOS 5.0 (Arbuckle 1997). In evaluating this model, we followed the procedures recommended by Anderson and Gerbing (1988). First, we conducted a confirmatory factor analysis (CFA) to examine the adequacy of the measurement component of the proposed model and evaluate discriminant validity. After ensuring an appropriate fit, we then derived the full structural model from our hypotheses. To gauge model fit, we report the comparative fit index (CFI) (Bentler 1990) and the standardized root mean square residual (SRMR) (Hu and Bentler 1999). The CFI has been identified as a strong approximation of the population value for a single model, with values ≥ 0.90 considered indicative of good fit. SRMR is a measure of the standardized difference between the observed and unobserved covariance and predicted covariance, with values ≤ 0.08 considered a "relatively good fit for the model," and values ≤ 0.10 considered "fair" (Hu and Bentler 1999).

Based on an exploratory and follow-up CFA, we determined that all items loaded significantly on their respective factors and no cross-loadings were present. Each indicator exhibited a highly significant estimate ($p < 0.001$), which suggests high convergent validity (Gerbing and Anderson 1988). Also,

discriminant validity was assessed according to the Fornell and Larcker (1981) suggested approach. By examining the amount of variance extracted for each of the latent constructs and comparing this to the squared correlations among the constructs, we found that the shared variance among any two constructs was always less than the average variance explained by the construct, which suggests that discriminant validity has been achieved.

Finally, because four of the variables were collected from the same source, we conducted checks for common method variance, which could inflate any observed correlations between the dependent and independent variables. As suggested by Griffith and Lusch (2007), we used a CFA approach to assess Harman's one-factor test. To do this, one would create a single latent factor for all same-source indicators as an alternative explanation to our results. Based on our analysis, our measurement model fit yielded a χ^2 of 295.61 (88), $p < 0.01$; CFI = 0.93; SRMR = 0.04. By fitting the same-source factor model, our fit was significantly worse with a χ^2 of 789.53 (101); $p < 0.01$; CFI = 0.77; SRMR = 0.08. Second, we employed the partial correlation procedure of including a marker variable (i.e., a variable not theoretically related to at least one other variable in the study). By using a measure of sales ethics as the marker variable, we found no significant relationships to other variables in the model. These analyses indicate that our structural equation analysis is not as susceptible to an inherent common method bias in the responses to the survey.

Table 1 provides descriptive statistics and pairwise correlations for this study. As mentioned, model fit for the measurement model was good (χ^2 = 295.61 (88), $p < 0.01$; CFI = 0.93; SRMR = 0.04). Next, we fit a linear effects model that amounts to the hypothesized model depicted in Figure 1 minus the two interactions (i.e., H4 and H5). This model was fit in order to test the linear relationships. This model also serves as a baseline model for tests of the interactions. Notably, the linear relationships between experience and both adaptive selling and effort, although not hypothesized, were included in this model so as to serve as a baseline for the hypothesized model.

To test the interaction effects, CRM usage and experience were both mean-centered (by virtue of using z-scores) so as to reduce effects of multicollinearity. We then calculated a multiplicative interactive term between the two variables and fit a second model that included this product as an antecedent of both effort and adaptive selling. Because the linear effects model is nested in the hypothesized model, a significant $\Delta\chi^2$ between them indicates that one or both of the interactions are significant (Cortina, Chen, and Dunlap 2001). To note, we specified the relationship between the observed scores and their respective latent variables by fixing the measurement error terms for each construct at $(1 - r_{xx})$ times the variance of each scale score. Following procedures advanced by Mathieu, Tannenbaum, and Salas (1992) and supported by Cortina,

Chen, and Dunlap (2001), the reliability of the interaction term was estimated using the formula presented by Bohrnstedt and Marwell (1978).

RESULTS

We derived the full structural model from our hypotheses. Structural model fit was within acceptable limits (χ^2 = 240.21 (95), $p < 0.01$; CFI = 0.95; SRMR = 0.04) (see Table 2). Although the χ^2-statistic is significant, it is not always the best indication of model fit (e.g., Bagozzi and Yi 1988), because it has the drawback of being sensitive to sample size and the number of parameters in the model. Notably, our initial findings show that SFA usage is negatively related to effort (H1: β = –0.123, $p < 0.05$) and that CRM usage does not have a negative relationship with effort as originally hypothesized (H2: β = 0.091). As expected, the linear effect of CRM usage to adaptive selling was positive and significant (H3: β = 0.122, $p < 0.05$). Finally, although not hypothesized, the linear effect of experience to effort (β = 0.166, $p < 0.01$) and adaptive selling (β = 0.106, $p < 0.05$) were both significant.

Next, we tested the hypothesized model. By adding the interaction terms, we found that the model demonstrated an excellent fit (χ^2 = 233.53 (93), $p < 0.01$; CFI = 0.95; SRMR = 0.04) and was a significant improvement over the linear effects model ($\Delta\chi^2$ (2) = 6.68, $p < 0.05$). The moderating effect of experience on CRM usage to effort was not present (H5: β = 0.083); however, the moderating influence of experience on the relationship between CRM and adaptive selling was evident (H4: β = 0.112, $p < 0.05$).

The final portion of our model examined both adaptive selling and effort as predictors of salesperson performance. We found that both effort (H6: β = 0.115, $p < 0.05$) and adaptive selling (H7: β = 0.086, $p < 0.05$) had significant relationships with performance. As a post hoc analysis, we included experience as an additional predictor of performance and found that it exhibited a significant relationship (β = 0.107, $p < 0.05$), while not changing the levels of significance of the other two variables. The proportions of variance of the endogenous variables accounted for were as follows: R^2_{Effort} = 0.047; $R^2_{Adaptive\ selling}$ = 0.034; and $R^2_{Performance}$ = 0.031.

To interpret the nature of the interaction, we plotted it using standard practices (Aiken and West 1991). Specifically, using the information from the moderated regression analysis, we plotted the relationship between CRM usage that correspond to the average, low (one SD below the mean) and high (one SD above the mean) values of the experience moderator (see Figure 2). Corresponding to our expectations, we find that CRM usage has a positive linear effect on adaptive selling and that increased levels of experience enhance this relationship as demonstrated by the steeper slope (more positive) for high-experience salespeople.

Table 1
Descriptive Statistics and Intercorrelations

|	Mean	Standard Deviation	Cronbach's Alpha	Sales Force Automation	Customer Relationship Management	Experience	Effort	Adaptive Selling	Performance
Sales Force Automation	4.75	1.25	0.71	1					
Customer Relationship Management	5.92	0.92	0.75	0.353*	1				
Experience	3.33	1.89	—	−0.069	−0.181	1			
Effort	46.9	7.69	—	−0.104*	0.010	0.144*	1		
Adaptive Selling	5.04	1.11	0.90	−0.042	0.115*	0.082*	0.118*	1	
Performance	111.81	61.31	—	0.034	0.079*	0.126*	0.120*	0.095*	1

* Correlation is significant at the 0.05 level (two-tailed).

Table 2
Standardized Parameter Estimates and Goodness-of-Fit Statistics

Relationships	Liner Effects Model	Interaction Effects	Post Hoc Effects
H1: SFA → Effort	−0.123	−0.109	−0.110
H2: CRM → Effort	0.091*	0.069*	0.068*
H3: CRM → Adaptive selling	0.122	0.101	0.100
Experience → Effort	0.166	0.177	0.172
Experience → Adaptive selling	0.106	0.121	0.119
H4: CRM x Experience → Adaptive selling		0.112	0.112
H5: CRM x Experience → Effort		0.083*	0.083*
H6: Effort → Performance	0.115	0.115	0.094
H7: Adaptive selling → Performance	0.086	0.086	0.078
Experience → Performance			0.107
χ^2 (degrees of freedom)	240.21 (95)	233.53 (93)	228.31 (92)
p-Value	0.001	0.001	0.001
CFI	0.95	0.95	0.95
SRMR	0.04	0.04	0.04

* $p > 0.05$.

Figure 2
Interaction Effects
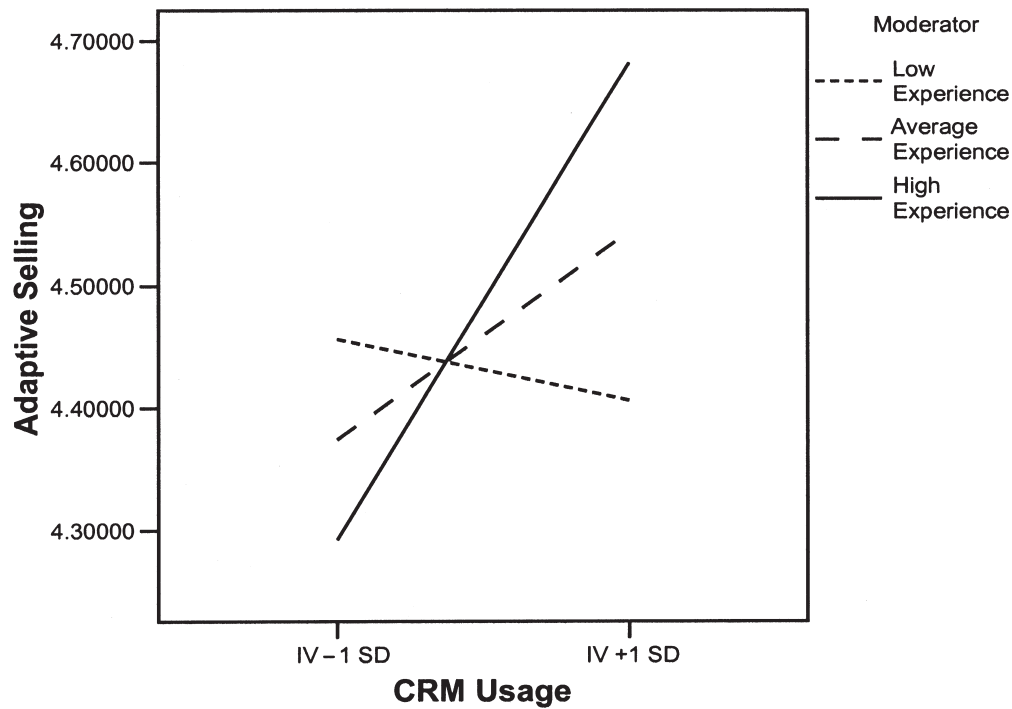
CONCLUSION

Discussion

The primary purpose of this research was to add to the growing stream of literature that focuses on the outcomes of sales force technology adoption. We believe that this research offers several valuable contributions to the literature stream.

Specifically, we divide sales technology usage into two separate dimensions of SFA usage and CRM usage. We believe that we have also advanced this topical area by including two behavioral outcomes of technology usage (i.e., effort and adaptive selling) as well as examining the moderating role of experience in the presented technology–behavior relationships. The use of the TPC theory allowed us to keep a focused, theoretically

based model that emphasized the linking role of salesperson behaviors within the suggested chain.

The results of our study provide support for five of our seven proposed hypotheses. In support of H1, we find that SFA usage has a direct negative impact on effort. This indicates that SFA tools, with their operational focus, will reduce the amount of hours worked. Upon reflection, intuitively, this makes sense. The tools found within the area of SFA all have a short-term, time-saving focus. This should lend itself directly to reducing workload and effort expended. Moreover, considering the positive correlation of effort with performance (H6), SFA usage can actually enhance salespeople's performance if they decide to utilize this saved amount of time to execute other job-related activities.

Findings suggest that the use of CRM tools, with a relationship focus, will not impact effort significantly (thereby failing to support H2). One reason for this could be the limited scope of our effort measure. Further research is needed that includes the broad conceptualization of effort as postulated by Brown and Peterson (1994). According to Brown and Peterson, effort represents "the force, energy, or activity by which work is accomplished" (1994, p. 71). As our measure does not capture all of these dimensions, it is possible that we are missing a component that could potentially change our findings.

We also find that CRM usage will have a direct positive impact on adaptive selling (H3). Given the strategic and customer-specific nature of CRM technology, salespeople can benefit by using the customer information provided by the tools to make more effective sales calls and to sharpen their presentations. In fact, CRM usage should help salespeople focus the direction of their activities and enhance the magnitude of their efforts. This is consistent with the thought that the use of CRM tools will have a longer-term, strategic, and relational focus.

Of the proposed interactions, we found empirical support for one of the relationships. Specifically, the data provide general support for the hypothesis that experience moderates the relationship between CRM usage and adaptive selling, thereby supporting H4. This result is aligned with other research exploring the effects of employees' experience levels on CRM programs in organizations. For example, Hart, Hogg, and Banerjee (2004), in their exploratory research study, report that experienced personnel will utilize CRM more effectively compared to their less-experienced counterparts. Reasoning this aspect, they argue that higher levels of experience will result in broader situation-specific knowledge, whereas less-experienced personnel will be limited to general concepts (Hart, Hogg, and Banerjee 2004; Huber 1991). Parallel to this, findings of the current study indicate that more-experienced sales representatives will be more likely to engage in adaptive selling when aided by CRM tools than will those salespeople with less experience.

The hypothesis suggesting the moderating effects of salesperson experience on the negative relationship between CRM and effort (i.e., H5) was not supported. It is possible that more-experienced salespeople will use CRM tools to accomplish more while working the same number of hours. Also, additional analyses suggest that those salespeople with higher levels of experience tend to perform better than those with less experience.

Finally, the third portion of our model reflected upon the more traditional salesperson behaviors of adaptive selling and effort. Both of these behaviors were found to have positive relationships with salesperson performance, supporting H6 and H7. However, the magnitude of these results was not at the same level as past research has suggested, perhaps due to our measure of salesperson performance. For example, Goolsby, Lagace, and Boolrom (1992) found inconsistent results of three adaptiveness traits of salespeople and relationships with five different dimensions of performance.

Another interpretation of these findings (i.e., low explanatory power for the quota measures) demonstrates the need for a better understanding of the tasks that drive performance. Because task–technology fit is essential for better performance (Goodhue and Thompson 1995), there could be alternative mediating mechanisms between sales technology use and performance not considered within this research. Recent research efforts have been done in this direction that suggest salesperson behaviors, such as providing customer service, as a mediator between technology use and performance (e.g., Ahearne et al. 2008); however, there is a requirement for more research that identifies and tests such mediating effects.

Managerial Implications

For salespeople, sales managers, and technology directors, our study has several managerial implications that can be translated into strategic actions that can benefit sales organizations. The first issue typically found with managers is the question of whether to implement some form of SFA or CRM application. Often, managers are expected to positively influence the degree to which the technology is accepted and utilized by their subordinates (Leonard-Barton and Deschamps 1988), but might be concerned that the cost of implementation might not yield necessary positive results or performance (Rigby and Ledingham 2004). Our results indicate that both SFA-related applications (influencing effort) and CRM-related applications (influencing adaptive selling) will lead to a positive influence on sales force performance. This finding reinforces existing literature that indicates that the investment in SFA and CRM applications *will* financially benefit firms and their sales representatives. Managers need to fully embrace technology tools as an effective and efficient aid for their sales representatives and provide access, training, and support to those types of

technology that can have the greatest impact. Therefore, managers should seek to implement some level of SFA or CRM within their sales force immediately.

The second issue typically found with sales managers lies in the area of the amount and level of sales technology implementation. Quite often, managers want to implement some form of SFA or CRM within their sales force but do not know which form to choose. This confusion can lead to an inappropriate level or type of implementation with high costs to the organization (Rigby, Reichheld, and Schefter 2002). Our research is one of the first studies to look at the differences between SFA and CRM in an effort to determine which tasks are best served by which sales technology tools. As found within our study, managers concerned with assisting their sales representatives in routine and repetitive tasks can directly influence their performance within that area by implementing SFA tools. Likewise, managers concerned with assisting their sales representatives with strategic or relationship tasks can positively influence that performance by implementing CRM tools. Managers must first understand the required task for their sales employees and assist their reps in identification of those tasks. Then, managers must ensure appropriate training so that their sales representatives will use the appropriate technology tool based on the required task. Further, sales managers need to understand that both types of technological tools must be available for their sales representatives, as both tools have the ability to influence behaviors that can ultimately affect performance.

Third, our study also provides information that allows managers to choose the appropriate sales technology tools based on the experience levels of their sales representatives. Managers often deal with experienced employees who are reluctant to change their sales processes and are therefore reluctant to adopt SFA or CRM tools (Pullig, Maxham, and Hair 2002). Our study finds that experienced sales representatives will see a positive benefit in their working smart behaviors; managers, therefore, can demonstrate to the reluctant sales representatives that adoption will improve their sales performance, even at their more-experienced levels. At the same time, our findings indicate that more-experienced sales representatives will have more success using CRM tools than their less-experienced counterparts. This presents an opportunity for less-experienced sales representatives to be trained appropriately; managers, therefore, should develop additional training programs for their less-experienced sales representatives so that they might become "smarter" when using CRM tools. This finding is consistent with previous findings in the sales literature with regard to experience. Specifically, new sales representatives often will have less success than their more-experienced counterparts, and instead of mimicking the behavior of successful, experienced reps, will seek to use different strategies (Dixon, Spiro, and Forbes 2003). Managers

need to train their new employees to use these tools as efficiently as their more experienced representatives with regard to their career stage.

Limitations and Future Research

As with all research, the findings presented here have some limitations. For example, we used a single-item measure of effort. Although we found this measure acceptable, a more robust measure could also have been used. Also, our *R*-square value, although above acceptable standards (Tabachnick and Fidell 2001), is lower than we would have hoped. This lower value indicates that there could be covariates or other predictors (e.g., knowledge) affecting our model; however, given our focus on technology within this research study, we did not choose to investigate other possible interactions.

Notably, in our study, we measure salesperson performance on the basis of percentage of quota achieved, which can be considered as a measurement limitation. We realize that percent-to-quota is not the only measure of sales performance; thus, we include the adaptive selling and effort as behavioral outcomes that can be used as softer measures to determine salesperson performance. However, future research should include other assessments of performance with the realization that percent-to-quota may be inherently biased. Another measurement limitation stems from the fact that the current study uses managers to report salespeople's adaptive selling behaviors. Although one can argue the unsuitability of indirect measurement for unobserved behaviors, we believe that adaptive selling behaviors are observable by the sales managers.

Importantly, because our study was conducted in a single-company frame, it would be interesting to investigate the aforementioned relationships in other sales settings or industries. Many firms use technologies that are customized to their organizations and may have different effects than our findings; however, for reasons of generalizaiblity, we attempted to keep our SFA/CRM items as general as possible, while still capturing the same measure of technology. Also, the cross-sectional nature of this study provides only a snapshot in time that makes it difficult to fully understand the order of effects and we are, therefore, left to infer causality. Therefore, in order to assist managers and researchers in understanding the long-term nature of sales technology adoption and consequence, future research could examine these constructs with longitudinal data to provide a richer understanding of the relationships between them.

In addition, future research could look at the expansion of our model to include other possible predictors. This expansion would strengthen our overall model and also allow for investigation of other possible enablers (or inhibitors) of usage of technology. Likewise, our current research indicates that sales representatives with different experience levels will use technol-

ogy tools at different levels of effectiveness. Future research, therefore, could investigate the impact of career stages (Cron 1984) on technology usage. It is possible that some salespeople, especially those with more experience, are better able to choose when and what tools to use more effectively than others. Thus, considering the possibility that different sales representatives use CRM tools differently, it may be interesting to investigate the role of "technology efficacy" as an influence on measuring the effective use of specific technology tools.

Finally, future research could incorporate the voice of the customer in a dyadic form of research. From this, researchers could investigate the effectiveness of SFA and CRM technology tools utilization from the perspective of the customer. As research streams in technology begin to focus on technology consequences as opposed to technology adoption, customer or client input could greatly improve future research. Importantly, we do believe that worthwhile research can be conducted that investigates the antecedents of technology use. For example, in our study, experience may have a negative influence on technology use, or a salesperson's intentions to engage in adaptive selling techniques leads to technology use; however, this was not the focus of our research. As more and more organizations and industries in general invest monies in technology, nearly all research that uncovers insight in the TPC and phenomena is valuable. We hope that this research supports that view.

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APPENDIX

Technology Usage (Adapted from Engle and Barnes 2000)

Use of CRM

Please indicate the extent to which you use technology to complete these tasks.

1. Identify most important customers based on territory analysis data.
2. Record and retrieve customer call information.
3. Plan territory management activities.
4. Prepare a sales presentation based on my customer's specific needs.

Use of SFA

Please indicate the extent to which you use technology to complete these tasks.

1. Learn about our existing and new products.
2. Receive information from, or provide information to, my manager.
3. Write thank you letters or other follow-up material.
4. Write reports detailing customer's interactions and reporting sample drops.

Experience

1. How much experience do you have in a sales job? _____ years _____ months
2. How long have you been with the company? _____ years _____ months
3. For how long have you been working in your current territory? _____ years _____ months

Effort

1. Please report, on average, how many hours a week that you work.

Adaptive Selling (Adapted from Spiro and Weitz 1990)

This salesperson . . .

1. Uses a set sales approach.
2. Is very flexible in the selling approach.
3. Feels confident that he or she can change his or her planned presentation when necessary.
4. Finds it difficult to adapt his or her presentation style to certain customers.