

Exploring Emotions during ERP Adoption: A Stakeholder Analysis

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Abstract

Emotions play a central part in a person's work experience and have been a topic in organizational behavior for about two decades. Nowhere is there greater potential for emotion-eliciting events than in conjunction with large-scale organizational transformations such as enterprise resource planning (ERP) systems. However, little research exists regarding the role of emotions in information systems development and implementation. This research is a case study that seeks to explore affect and emotional reactions from the perspectives of the different stakeholders involved the selection of an ERP package. The results show that ERP selection is a very emotional phase during the ERP implementation life cycle. There are however differences in the emotional experiences of three different types of stakeholders: experts, representatives, and users. These results may have important implications for the proper staffing and management of cross-functional teams in information systems development and implementation.

1. Introduction

The size and complexity of the software and implementation process make ERP solutions risky and costly, and the most likely business initiatives to fail [34] [1]. Since an ERP system affects virtually all aspects of an organization, the wrong purchase can adversely affect the organization as a whole, in several different areas, and on several different levels [34] [18] [32]. As such, the selection and acquisition of the enterprise system is a critical activity during the initial chartering phase of an ERP project [18] [34] as it sets the stage for subsequent project phases and influences enterprise system success. Because ERP projects involve many or all of the functional departments in an enterprise, ERP system selection is often made by a committee (e.g., a task force) and by consensus [14]. Typically, committees or task forces are cross-functional, multidisciplinary, and interdisciplinary and may include key users and user groups, IT staff, and representatives from other application areas impacted by the new solution [35].

The language of rationality, logic, and analysis generally dominates IT decisions and planning as evidenced by models of systems development and

software selection in MIS textbooks (e.g., [39]), and models of and prescriptions for ERP selection in the academic and trade literatures (e.g., Verville's six-stage process model [34], Stefanou's [32] framework for ERP systems selection). In general, the development of a *structured, rigorous process and ex-ante decision-making framework* that combines both *quantitative and qualitative criteria* has been identified as one of the most important ways of ensuring successful enterprise selection [12] [32] [6] [34]. Despite the dominance such cognitive-rational paradigms, the role of affect and emotions in organizational settings has been recognized as an important topic in organizational behavior and research [3]. According to Lundberg and Young [16] no full understanding of organizational events can be achieved while ignoring emotions, which are pervasive and often very significant in managerial affairs. Only recently has research begun to investigate affect and emotions in IT (e.g., [31], [42]). McGrath [19] proposes that frameworks for information systems development should address emotional as well as cognitive aspects.

As part of a case study of decision processes during ERP adoption, the present research seeks to explore emotions during the selection of an ERP package. Using structured interviews of key stakeholders in the selection process shortly after a final decision regarding the vendor was made, this study addresses the following questions:

- Which emotional responses, if any, are elicited during the selection process of an ERP package?
- How do emotional reactions differ across the stakeholders involved?

We are interested in these issues for three reasons. First, ERP systems generally bring about major change. Mossholder, Settoon, Armenakis, and Harris [22] suggest that "perhaps nowhere is there greater potential for emotion-eliciting events than in conjunction with large-scale organizational transformations" (p. 221). Emotions color all perception, thinking, and behavior, and are critical variables in both effective and ineffective change projects [16]. Second, despite its importance, the selection/acquisition stage of ERP adoption and implementation has not been studied extensively [7]. Finally, appraisal theories of emotion suggest that different emotional reactions from different people to the same event. As such, a richer and more insightful picture of emotional responses will emerge through an analysis of

responses across different stakeholder groups. Such stakeholder analysis can contribute to the management of information systems projects in practice by considering organizational issues that are often at the heart of project failures from multiple perspectives [27].

2. About Emotions

2.1. Defining Emotion

With over 90 definitions of emotions, there is little consensus in the literature regarding the concept of emotion or affect [25] [4] [30]. Bagozzi et al. [4] use the term affect as an umbrella term for a set of specific mental processes that include emotions, moods, and attitudes. Unlike moods, emotions tend to be focused, involve affect that is directed at someone or some object, and are often the result of a contextual stimulus [22]. Russell and Feldman Barrett [30] distinguish between prototypical emotional episodes and core affect. A prototypical emotional episode is defined as “a complex set of interrelated subevents concerned with a specific object” while the term core affect denotes “the most elementary consciously accessible affective feelings ... that need not be directed at anything” ([30], p. 806).

2.2. The Structure of Emotions

Past research in psychology on the structure of emotion has generated a number of models and taxonomies that describe emotions in terms of two primary dimensions that define a circular configuration. One example is Russell’s circumplex model of emotion [29] [8], which classifies emotions along two dimensions: pleasantness-unpleasantness and arousal-quietness (Figure 1).

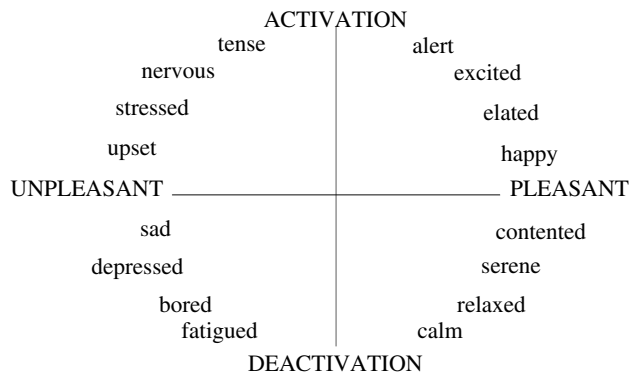


Figure 1. Circumplex Model of Affect (based on [8], p. 970)

A similar model by Watson and Tellegen [36] distinguishes positive affect (PA) and negative affect

(NA) at low and high levels of arousal. *Appraisal theories of emotions* (e.g., [28]) are based on the premise that emotions do not operate independently of circumstances. The critical determinant of any emotion is a conscious or subconscious evaluation and interpretation of an event or circumstance that may give rise to an emotional response [4]. Other classification schemes for emotions include the following six categories: anger, fear, joy, love, sadness, and surprise [20].

2.3. Measuring Emotions

Several scales and questionnaires exist for measuring affect and emotions [26]. Watson, Clark, and Tellegen [37] developed scales of positive and negative affect (PANAS scales) consisting of 18 discrete emotions. Roseman [28] has identified a set of 16 discrete emotions that may be experienced in any given situation. Another measure of emotion is Whissell’s Dictionary of Affect in Language [38] based on approximately 4000 words which describes each word in terms of two scores: a score along the Activation/Arousal dimension, another score along the dimension of Evaluation (or Pleasantness) dimension.

3. Emotions and Information Systems

3.1. Emotions in IS Research

Studies that consider emotions or affect in information systems are scarce given the traditional view of information systems development and implementation as a cognitive and rational process [19]. One exception is Zorn’s study [42], which focuses on how emotion is and can be used in organizational communication. Specifically Zorn examines how and why employees express emotion in dealing with information and communication technology (ICT) implementation, and how change agents use emotion to achieve their goals. The study, which involves observation of two training sessions of a new system, showed that emotion played a key role in ICT implementation. The author found that:

- the emotional experience of the implementation was ambiguous and negotiable;
- participants in organizational change attempted to influence each other’s emotional experience via communication;
- participants used emotional expression instrumentally to achieve their objectives;
- change agents engaged in emotional labour to enact the change;
- participants relied on generic and organizationally specific rules of emotional expression as resources and constraints in achieving their objectives (p. 167).

McGrath’s [19] analysis of the implementation of a computer-aided dispatch system for the London

Ambulance Service highlights the importance of moods in which actors approach the task of systems development. In the case of the London Ambulance Service, the dominant mood of fear, specifically fear of failure and fear of sabotage in the community, led to a prototyping approach to information systems development rather than the traditional systems life cycle approach.

A study of interpersonal conflict and its management in information systems development found negative emotion to be a definitional property of interpersonal conflict. It was assumed that negative emotions such as anger and frustration emerge when there are major disagreements, or when parties interfere with the attainment of each others' important goals. The study showed interpersonal conflict to negatively affect information systems development outcomes, even when managed well [5].

Similarly, research on the human side of group support systems found that positive affect was positively related to four facets of group support system satisfaction: facilitator satisfaction, task satisfaction, group process satisfaction, and satisfaction with meeting outcomes [15].

Finally, Shaw [31] uses Affective Events Theory in the IT domain to examine how emotions can help explain the job outcomes of systems developers.

3.2. Emotions and ERP Adoption

Prior literature suggests a number of areas where affect and emotions play or role or have an impact during the selection of an ERP package.

- Williams and Rao [40] analysis of classical models of technology adoption yields a framework with three phases: cognitive, affective, and behavior. The cognitive phase of becoming aware of a technology is followed by an *affective stage* where managers develop feelings toward the technology such as interest, liking, preference, and conviction. Favorable feelings result in moving towards the behavioral stage of technology adoption.
- Because final judgment on the success or failure of an ERP package cannot be truly rendered until the system has been implemented and rolled out into production, ERP selection involves high levels of risk and uncertainty [34]. Uncertainty can trigger a range of *affective reactions to uncertainty* from concern to high anxiety, depending on the importance of the circumstances [16].
- ERP projects have a number of different actors or stakeholders with different perceptions, attitudes, levels of interest, and degrees of power and influence [10]. Often, users and IT staff are thought to belong to distinctly different organizational cultures [5]. The characteristics of a cross-functional ERP selection team may be likely to result in goal blockage/goal conflict and interpersonal/affective conflict. Goal

blockage defined as not achieving a desired goal is important because the choice of an integrated package will always require compromise and will not satisfy all parties involved to an equal degree. *Affective reactions to goal blockage* or conflict can range from minor frustration to alarm [16].

“No matter how much time and effort will be poured into this project by the Acquisition Team members, let them be assured of at least one thing – in the end, not everybody is going to be happy with the final choice. ... The goal, though, is to minimize the number of disgruntled users in your organization who are dissatisfied with the final choice” ([34], p. 248).

- The variety of stakeholders on an ERP selection team involved can also trigger personal, interpersonal or affective conflict. Unlike cognitive conflict, which is functional, affective conflict is dysfunctional and tends to be focused on personal incompatibilities or disputes [2]. Such negative emotionality and affective conflict can adversely affect group outcomes and erode decision quality, consensus, and affective acceptance [2] [13]. The optimal profile for high performing groups includes little negative emotionality [13].
- Prior research also suggests that satisfaction, an important outcome variable in IS research, is in part an affective experience. Specifically, satisfaction was found to be positively correlated with positive and negatively correlated with negative affect [17].
- Finally, negative affect may compromise decision-making in other ways. Fear and anger, for example, can differentially affect information accessibility, desired information seeking, and policy preference [23]. At the same time, studies of affective influences on bargaining and negotiation showed that participants in a positive mood set higher and more ambitious goals for themselves, formed more ambitious expectations about the forthcoming encounter, and also formulated action plans that were more cooperative and integrative and less competitive than those approaching the situation with negative affect [9].

4. Method

4.1. Data Collection and Measurement

The present research was part of a case study that focused on decision-making processes in ERP adoption at a small university in the southeastern United States. ERP selection involved members of the steering committee and the cross-functional taskforce that were formed. The steering committee consisted of senior staff members and the President. Selected individuals from across the university staff, administration, and faculty constituted the task force. Each member of the taskforce designated at least one additional member from their unit to serve as an alternate and backup for meetings. As a result, attendance and representation at the many meetings held was consistently high. Functional units took advantage of this redundancy to involve more people in their decision-making.

The composition of the steering committee and taskforce, while diverse across functional areas and staff level, was heavily weighted toward university staff members. Faculty representation consisted of one faculty member from each of the two colleges. Another faculty member in the College of Business advised about project management issues. Two faculty administrators from the College of Business also participated in the task force meetings. Student representatives were not appointed to the task force, though one did attend occasionally, representing the College of Liberal Arts.

Data was collected via structured interviews with thirteen members of the task force and steering committee involved in the ERP selection process shortly after the choice for a vendor was made. Specifically, the sample includes nine members of the multi-disciplinary task force and four members of the steering committee. Only primary taskforce members, not alternates, were interviewed. These stakeholders were selected because of their involvement with the project and willingness to participate in the study. A deliberate effort was made to ensure that a wide variety of stakeholders were included. Respondents had been with the university for an average of 11 years, ranging from a minimum of 3 to a maximum of 30 years, and held their current position for an average of 5.25 years, ranging from a minimum of .25 years to a maximum of 20 years.

Interviews took approximately one hour to complete, were conducted in the stakeholders' offices during regular business hours by one or two researchers, and were based on the same protocol. Questions addressed general and background information regarding each respondent, the existing system, and the selection process for the new system. Questions for *emotions* were both Likert-scaled and open-ended. Participants were asked to indicate the degree to which they were emotionally affected during the decision process using a 5-point scale ranging from 1 (no

emotions/not affected at all) to 5 (very affected). Participants were also presented with a short list of emotions drawn from Nielsen (2002) and then asked to indicate the degree to which they experienced these emotions using a 5-point scale ranging from 1 (not at all/never) to 5 (very). Respondents were encouraged to comment or elaborate on their scaled responses, and add additional emotions they experienced. When additional emotions emerged, respondents were asked to indicate the degree to which they experienced those emotions using the 5-point scale described above. A number of questions also addressed *satisfaction* with various aspects of the decision-making process and its outcome using a 5-point Likert scale ranging from 1 (not at all) to 5 (very). Respondents were also asked an open-ended question regarding their perceptions of conflict during the selection process.

4.2. Data Analysis

Each researcher took notes independently and recorded all scaled responses. Recorded answers of the scaled responses initially agreed 95% of the time. Every discrepancy was discussed by the researchers and resolved based on additional notes or comments that were made during the interviews.

Because we initially approached the ERP selection process from a group decision-making perspective, Harrison's (1987) typology of membership in decision-making groups was used to classify each actors/stakeholder involved in the ERP selection process into one of the following groups:

1. **Experts**, who have relevant knowledge, skills, or information to make a quality decision (IT);
2. **Representatives**, who speak for a particular constituency or special interest group (functional area representatives); and
3. **Users**, who work in the unit in which the decision is being made.

As a result, the sample included 2 experts, 6 representatives, and 5 users. The small sample, while representing a good percentage of each decision group fielded by the university, is too small to support sophisticated statistical analysis of the scaled responses. Instead, simple means by stakeholder group (experts, representatives, or users) are computed and used in combination with the explanations and additional comments that respondents made during the interviews.

5. Findings

Even though the university is a small to medium sized private institution, it followed a formal and structured decision process that included the creation of a steering committee and a cross-functional taskforce similar to the process described by Verville and Halington [35]. The

comments in Table 1 provide an overview of how respondents compared this decision-process to others. The primary difference was one of scale and participation.

Table 1. ERP selection process vis-à-vis other decision processes at the university

| Stakeholder | Comments |
|------------------------|---|
| Experts | <ul style="list-style-type: none"> • More encompassing; participation was different, much more participative • Larger scope, involved a lot of different stakeholder |
| Representatives | <ul style="list-style-type: none"> • More participative • Very different, gathered a lot more input from many different departments, process was much broader. Everybody learned from others. • Better guided project. • Not too different compared to decision processes in general, but a lot more went into it, long-term decision • A lot more collaborative and rational, well organized • Other than the scale, no difference |
| Users | <ul style="list-style-type: none"> • More people were involved in the decision, every department, not just senior staff decision • Not really, seemed about normal • Yes, a few more people were asked • Much more comprehensive across all departments, all departments were involved • University-wide, all departments had a say, presented as equal vote. |

Responses to the question regarding conflict revealed a certain amount of goal conflict between the functional departments and modules (e.g., financial, HR, Alumni, Residence Life) that caused some frustration and anger. As one respondent stated; “Everybody wanted to get the best system, but the best system varied according to the area represented”. Interview responses suggest that the conflict was primarily cognitive conflict, described as differences in opinion and attributed to the amount and type of knowledge that different participants had to offer. Perceptions about the amount of conflict were however

not uniform and ranged from “not aware of any serious conflicts” and “surprised by the lack of conflict” to “some conflict” and “definitely” and “oh yes, some were very upset”.

Table 2. Measures of satisfaction

| Satisfaction with... | Mean |
|--------------------------------------|------|
| project overall so far | 4.46 |
| chosen vendor | 4.50 |
| user involvement in decision process | 4.62 |
| user involvement in vendor demos | 4.69 |
| user-buy in | 4.50 |

Despite the conflict, mean responses regarding select measures of satisfaction (Table 2) show that overall, respondents were very satisfied with how the project was conducted up to the point of the interviews. Satisfaction was also high regarding the vendor chosen, user involvement in the decision process and in vendor demonstrations, and user-buy-in, which reflective affective acceptance of the decision. The high degree of satisfaction with these items was consistent across stakeholder groups.

Table 3 shows mean responses for 23 emotions in descending order of importance. Overall, the ERP selection process was very emotional and elicited a wide variety number of emotional responses. Many of the stakeholders we interviewed found that they were extremely emotionally affected by the experience as indicated by the overall mean of 3.79.

When distinguishing between the different stakeholders, experts appeared to be much more emotionally involved overall (mean = 5.00) than the representatives (mean = 3.17) or users (mean = 3.20). In additional comments, both experts likened the experience to personal relationship experiences such as dating, and getting married or divorced. One expert described the experience as “gut-wrenching” when one has to break up with a vendor which whom close relationships were developed.

Table 3. Emotional reactions

| Emotion | Mean |
|-----------------------------|------|
| overall | 3.79 |
| irritation | 3.19 |
| pressure | 3.11 |
| excitement | 2.99 |
| disappointment | 2.98 |
| resentment | 2.89 |
| boredom | 2.61 |
| gratitude | 2.56 |
| impatience | 2.31 |
| fatigue | 2.26 |
| relief | 2.17 |
| concern | 2.17 |
| pride | 2.09 |
| fear | 1.53 |
| responsibility | 1.53 |
| happiness | 1.30 |
| calmness | 1.22 |
| encouraged | 1.22 |
| empowerment | 1.20 |
| aggression | 1.17 |
| patience | 1.17 |
| respect for other's opinion | 1.17 |
| disengagement | 1.17 |
| interest | 1.11 |

Figure 2 shows the emotional responses shown from Table 3 according stakeholder group and highlights several differences between the groups. Specifically, experts experienced greater resentment, pressure, irritation disappointment, gratitude, and fear than other stakeholders. Resentment and irritation were primarily triggered by vendor tactics and vaporware claims. Only one expert indicated feeling patience.

Emotions that were experienced to the greatest extent by representatives included boredom, impatience, and concern. Feelings of boredom were primarily prompted by long meetings, the technical nature of some of the meetings, and the need to attend meetings of another functional area. Emotions unique to representatives were aggression, calmness, disengagement, encouraged, interest, and respect for other opinions. Finally, emotions relatively stronger for users included excitement and relief. Users were particularly excited about the “new horizon of possibilities” such as reports that can be generated more quickly. Emotions only mentioned by users included responsibility and empowerment. Some users realized the importance of the project for the

university, felt a great deal of responsibility to the university and their departments, and as indicated by one user “wanted to do the best I could”. There was also a sense of empowerment as a result of being involved “knowing that other universities do not include users beyond senior staff”.

6. Discussion

Considering Russell and Feldman’s circumplex model shown in Figure 1, many of the emotions, listed in Table 3, e.g., excitement (2.99), pressure (3.11), resentment (2.89), and irritation (3.19) are examples of the activation end of the spectrum. Only few can be associated with the deactivation spectrum: bored (2.61), fatigued (2.26), and calm (1.22). As such, ERP selection appears to be elicit a number of highly charged emotions, both pleasant (excited) and unpleasant (irritation).

Consistent with Williams and Rao’s framework [40] our interviews also indicate an affective stage that began with the attendance of vendor demos that gave many the opportunity to really develop feelings about a specific product.

The results are also consistent with appraisal theories of emotions that explain differences in emotions between individuals in response to the same event. The present study showed some differences among the three stakeholder types in their emotional reactions, possibly as a result of different appraisals of the existing and new system. An example is the higher degree of excitement among users, which can be explained by considering the satisfaction with various aspects of the current system across stakeholder groups as shown in Table 4. Clearly, users were considerably less satisfied with data from the existing system than other stakeholders. Also, the analysis of emotions by stakeholder group showed that some emotions that are strongly experienced by some have absolutely no import to others.

Table 4. Satisfaction with Existing System

| Satisfaction with... | Experts (n=2) | Reps (n=6) | Users (n=5) |
|----------------------|---------------|------------|-------------|
| data in general | 5.00 | 3.50 | 2.80 |
| data accuracy | 4.50 | 3.67 | 2.80 |
| timeliness of data | 4.00 | 3.33 | 2.80 |
| data consistency | 4.00 | 3.42 | 2.40 |
| comprehensiveness | 4.00 | 2.92 | 2.40 |

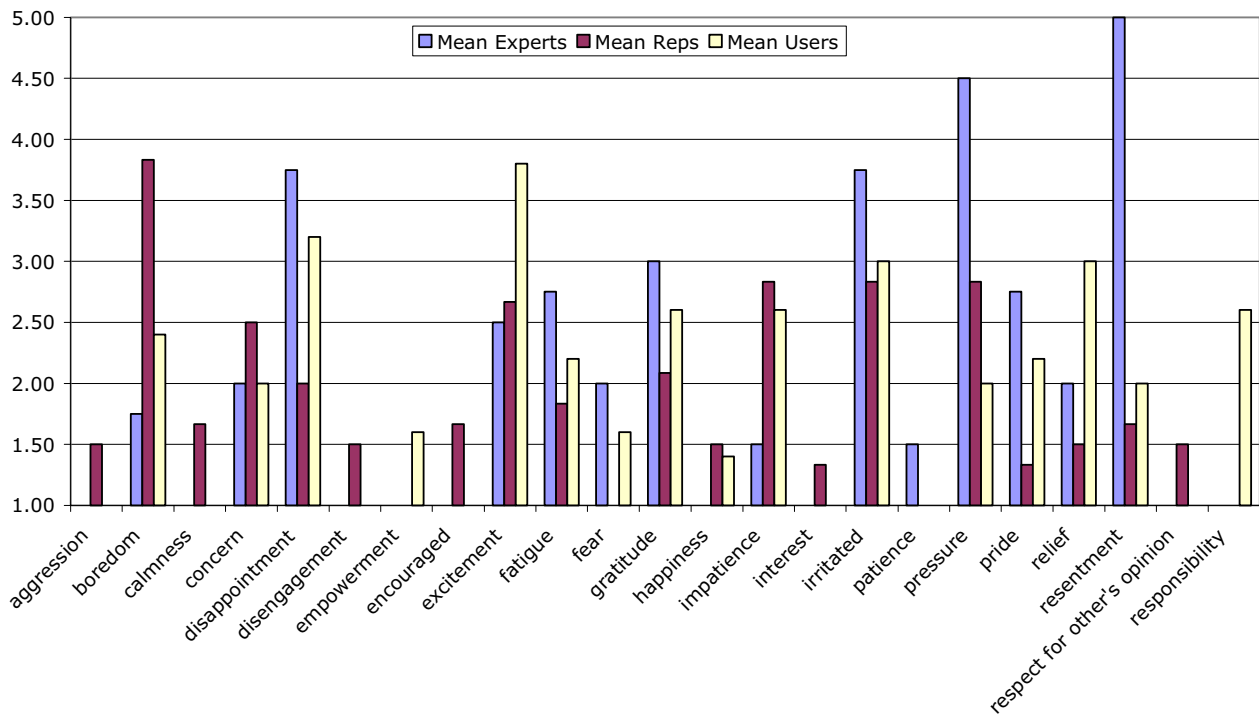


Figure 2. Emotions by stakeholder group

Appraisal theories also explain the experience of different emotions by the same individual at different times. For example, our interviews showed that individuals had episodes of the same emotion with different intensities depending on a specific event during the selection process such as team meetings, site visits, etc. Participants in this study would indicate that irritation would come and go, or that they experienced it from time to time, “sometimes, sometimes not”, or that there were pockets of fatigue.

Finally, the same emotion can mean different things to different stakeholders in terms of its direction. With respect to excitement, for example, one expert was excited about the potential of the new system to put IT into a good light, while users and representatives were excited about the possibilities of the new system. Similarly, feelings of gratitude were directed at different objects or people: some were grateful to a vendor (expert), others to the project manager (rep), yet others to the university (reps), and for opportunity to participate (user).

7. Limitations and Future Directions

The purpose of this paper was to address an important and under-researched aspect of ERP implementations: the role of affect and emotions. Embracing the stakeholder

concept, the analysis showed some clear differences in the emotional reactions of stakeholder types serving on a cross-functional team of IT experts, functional area representatives, and users tasked with selecting and ERP system. Such differences may have implications for the proper staffing and management of cross-functional and other teams involved in information systems development and implementation.

This study was exploratory in nature. The small sample precluded sophisticated statistical analysis and may limit the generalizability of the findings. Also, this research relied on self-report measures of emotion instead of observing emotions in action. Finally, we relied on stakeholders that were willing to participate. Consequently, the findings and observations presented here may not have captured the full range of conflict and emotions that was experienced during the selection process.

It is hoped that the present study will inspire future research into the role of emotions in information systems development and implementation. Researchers may begin by validating the results of this study with a larger sample to determine differences in the structure of emotional reactions using some of the validated scales of affect (e.g., PANAS scales [37]). Also, Whissell’s Dictionary of Affect [38] may be useful for analyzing narratives of implementations. Research with a larger sample could

also explore emotional reactions for the purpose of comparing successful and unsuccessful implementations. In that vein and similar to Thornhill and Saunders [33] longitudinal studies that explore changes in the emotional reactions of various stakeholders as the implementation progresses may provide some insights that help with devising strategies and interventions to manage and alleviate the emotional toll of large-scale transformations. Prior research has shown a significant relationship between emotional exhaustion and voluntary turnover [41]. Consequently, future research may also consider the impact of emotions on turnover during system implementation. In conclusion, the emotionality of systems development and implementation is an important and timely topic that offers many avenues for future research that are of interest to both academics and practitioners.

8. References

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