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RESEARCH ARTICLE

UNDERSTANDING USER REVISIONS WHEN USING INFORMATION SYSTEM FEATURES: ADAPTIVE SYSTEM USE AND TRIGGERS

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Appendix A

Concepts Related to Adaptive System Use

Article ID	Concepts	Definitions	Technical Level
Ahuja and Thatcher (2005)	Trying to innovate	An individual's goal of finding novel uses for information technologies. This is considered to be a particularly suitable volitional post-adoptive measure.	Whole system
Barki et al. (2007)	Task-technology adaptation behaviors	Task-technology adaptation includes all behaviors directed at changing or modifying an IT and its deployment and use in an organization. Specifically, this category includes improving functionality, improving interface, improving hardware, modifying tasks, and modifying systems. Reinvention underlies this category.	Feature
Beaudry and Pinsonneault (2005)	IT related coping behaviors	System users choose different adaptation strategies based on a combination of primary appraisal (i.e., a user's assessment of the expected consequences of an IT event) and secondary appraisal (i.e., a user's assessment of his/her control over the situation). Users will perform different actions in response to a combination of cognitive and behavioral efforts, both of which have been categorized as either problem- or emotion-focused.	Whole system
Burton-Jones and Straub (2006)	Deep structure use	Deep structure use indicates the extent to which these features have actually been used by a user.	Feature
Jain and Kanungo (2004)	Nature of IS use	Measured by three descriptors: organized, different, and efficient use of IT.	Whole system
Jasperson et al. (2005)	Feature adoption, Feature use, Feature extension	Users adopt, use and extend system features.	Feature

Article ID	Concepts	Definitions	Technical Level
Saga and Zmud (1994)	Extended use	Using more of the technology's features in order to accommodate a more comprehensive set of work tasks.	Feature/Whole system
	Integrative use	Using the technology in order to establish or enhance work flow linkages among a set of work tasks.	
	Emergent use	Using the technology in order to accomplish work tasks that were not feasible or recognized prior to the application of the technology to the work system.	
Singletary et al. (2002)	Unanticipated use[†]	Voluntarily extending the use of a software product to new tasks and new settings after mandatory adoption for a specific task in a specific setting.	Whole system

[†]In a later paper, they called it "innovative use," but it has the same meaning (and measurements) as "unanticipated use."

Appendix B

The Situating Task

Microsoft Office has many products such as Word, Excel, Access, Outlook, Visio, PowerPoint, and FrontPage.

In this survey, we define ***features*** as the building blocks of a software package. You know them as functions such as the "copy," "paste," and "rrack changes" functions in Word.

First, please recall one incident in which you changed your use of some features in Microsoft Office at work. By ***changes in using features***, we mean you change your feature selection in Office products or you change the way you use Office features. Some examples are you tried new features, you combined some features for the first time, or applied features to tasks that they are not meant for, etc.

Please use several sentences to describe what happened during that incident. For example, why and what made you to change? What did you do? How did you learn to do that? (This question is required.)

Please describe your incident here:

Below are some questions **about that incident.** Please indicate to what extent you agree with the following statement about that incident. [To Appendix C.]

Appendix C

Instrument

Personal Innovativeness in IT
(Adapted from Agarwal and Karahanna 2000)
PIIT1: If I heard about a new information technology, I would look for ways to experiment with it.
PIIT2: In general, I am hesitant to try out new information technology. (Reverse item)
PIIT3: Among my peers, I am usually the first to try out new information technologies.
PIIT4: I like to experiment with new information technologies.

Facilitating Conditions
(Adapted from Venkatesh et al. 2003)
During that incident (reported above [Appendix B]) …
Fcond1: I had the resources necessary to change
Fcond2: I had the knowledge necessary to change
Fcond3: A specific person (or group) was available for assistance for that change (Dropped)

Adaptive System Use (Self-Developed)
Please indicate to what extent you agree with the following statements about that incident you reported [Appendix B], by selecting a number from 1 to 7, where 1 indicates strongly disagree, 4 indicates neutral, and 7 indicates strongly agree.

Trying new features:
TR1: I played around with features in Microsoft Office.
TR2: I used some Office features by trial and error.
TR3: I tried new features in Microsoft Office.
TR4: I figured out how to use certain Office features.

Feature substituting:
FS1: I substituted features that I used before.
FS2: I replaced some Office features with new features.
FS3: I used similar features in place of the features at hand.

Feature combining:
FC1: I generated ideas about combining features in Microsoft Office I was using.
FC2: I combined certain features in Microsoft Office.
FC3: I used some features in Microsoft Office together for the first time.
FC4: I combined features in Microsoft Office with features in other applications to finish a task.

Feature repurposing:
FR1: I applied some features in Microsoft Office to tasks that the features are not meant for.
FR2: I used some features in Microsoft Office in ways that are not intended by the developer.
FR3: The developers of Microsoft Office would probably disagree with how I used some features in Microsoft Office products.
FR4: My use of some features in Microsoft Office was likely at odds with its original intent.
FR5: I invented new ways of using some features in Microsoft Office.
FR6: I created workarounds to overcome system restrictions.

Triggers (Self-Developed)
Please indicate to what extent you agree with the following statements about that incident you reported [Appendix B], by selecting a number from 1 to 7, where 1 indicates strongly disagree, 4 indicates neutral, and 7 indicates strongly agree.

Novel Situation (NS):
New Task (NT):
NT1: My task changed (e.g., I had a new task).

Changes in Sstem Evironments (SE):
SE1: The system environment in my organization changed
SE2: Our system was being upgraded
SE3: The peripheral facilities (e.g., printers, copiers, and scanners) changed in my organization
SE4: I used different versions of Office products

Other people’s use (OU):
OU1: I saw other people’s use of that feature
OU2: Someone showed me a new feature
OU3: Someone showed me a new way of using a feature I knew

Discrepancy (DP):
DP1: Some Office features did not work as I thought.
DP2: There were discrepancies between what I expected and what I found out in terms of the features in Microsoft Office.

Deliberate Initiative (DI):
DI1: Somebody asked me to use certain features.
DI2: I was forced by others to change.

Appendix D

The Process of Instrument Development for ASU and Triggers

This paper follows, for the most part, the procedure suggested by Moore and Benbasat (1991). Diamantopoulos and Winklhofer's (2001) research and Petter et al.'s (2007) research on how to specify and validate formative constructs were also referred to extensively.

Step 1: Item Creation

An extensive literature review was conducted to ensure that the measures of ASU and triggers covered the entire scope of these concepts. Items from previous studies — such as DeSanctis and Poole's (1994) conceptualization of "appropriation moves" —were referred to. New items were created to ensure that the concepts of ASU and Triggers were well covered by their measures. For instance, Wong and Weiner (1981) distinguished two types of discrepancies: disconfirmed expectancy and failure. Thus two items, representing disconfirmed expectation and failure in system use respectively, were created to measure the discrepancies dimension of triggers.

Step 2: Interviews

As per Diamantopoulos and Winklhofer's suggestions, exploratory interviews (one hour each) with 14 typical users of the MS Office suite were conducted to further enhance the content validities of triggers and adaptive system use. Interviewees were five graduate students and five staff members at a major northeastern university in the United States and four IT practitioners, representing a relatively large spectrum of system use behaviors. Interviews were designed to move progressively from an open-ended general discussion to a semi-structured format, and finally to a highly structured item-by-item examination of the draft instruments. To eliminate ambiguities and to test validities, the subjects were asked to go through the questionnaire item-by-item and make any revisions they thought necessary. They were also asked to rate the clarity of each item (1 for clear and 0 for unclear) and provide suggestions on revising the items that they considered ambiguous. After the interviews, 17items that had received more than 3 "unclear" marks were dropped. In addition, all interviews were recorded, and a close examination of the transcripts revealed a set of repeating key words describing ASU behavior and triggers, which were then integrated into the instruments.

Step 3: Two-Step Q-Sort

Q-sorting has been considered "one of the best methods to assess content validity for formative constructs" (Petter et al. 2007, p. 639). This research conducted a two-step Q-sort, with four judges in each round, following the procedure set forth by Moore and Benbasat. In the first round, the judges categorized the proposed items printed on small cards into groups and then named the resulting groups. In the second round, unlike the first, the judges were told the names and descriptions of all categories and then they sorted the cards.

The item placement ratio (developed by Moore and Benbasat) was used to measure construct validity. The method requires analysis of the overall frequency with which all judges place items within the intended theoretical constructs. To assess the reliability of the sorting conducted by the judges, both raw agreement and Cohen's Kappa were referred to. The Kappa scores were calculated for each pairing of a judge with a group. Then, an assessment was made of the level of agreement across all possible pairs. A Kappa score of 0.65 or larger is considered acceptable.

The first round Q-sort had an overall hit ratio of 0.83, an average raw agreement of 0.82, and an average Kappa of 0.77. For the second round, the average hit ratio was 0.82, the raw agreement was 0.88, and the Cohen's Kappa was 0.85, respectively. Eight items that were considered either too ambiguous (fitting in more than one category) or too indeterminate (fitting into no category) were dropped.

Step 4: Pretest Survey

A pretest survey was conducted at a major northeastern university in the United States. A total of 106 complete responses from undergraduate and graduate students were collected. Among the respondents, 63 percent were female and 37 percent were male. The average age of the respondents was 31.7.

The purposes of the pilot study were twofold: to ensure that the questionnaire was properly compiled, and to have a reliability assessment of the scales. To achieve the first goal, an open question was included to allow subjects to comment on the wording, content, and length of the questionnaire. Revisions to the questionnaire were made accordingly. To assess the reliability of the scales, Cronbach's ALPHA (Cronbach 1970) was utilized which is, according to Moore and Benbasat, "fairly standard in most discussions of reliability." Seven items with low inter-item and item-total correlations, high "Cronbach's Alpha if item deleted" statistics, and/or small standard deviation scores (and thus low explanatory power), were deleted with the content validity in mind.

Appendix E

Loadings and Cross-Loadings

	TR	FS	FC	FR	NT	OU	SE	DP	DI	Fcond	PIIT
TR1	0.88	0.40	0.40	-0.01	0.09	0.09	0.05	0.06	0.03	0.25	0.46
TR2	0.84	0.21	0.30	-0.13	-0.05	-0.09	-0.10	0.10	-0.08	0.08	0.26
TR3	0.93	0.39	0.39	-0.11	0.04	0.07	-0.02	0.10	0.02	0.21	0.47
TR4	0.88	0.26	0.34	-0.10	0.02	0.02	-0.06	0.00	-0.07	0.17	0.44
FS1	0.39	0.87	0.41	0.38	0.30	0.19	0.28	0.20	0.22	0.23	0.29
FS2	0.29	0.90	0.54	0.41	0.42	0.35	0.36	0.44	0.31	0.21	0.31
FS3	0.31	0.89	0.48	0.49	0.43	0.30	0.34	0.38	0.26	0.23	0.37
FC1	0.43	0.47	0.81	0.39	0.26	0.13	0.21	0.28	0.16	0.23	0.37
FC2	0.35	0.49	0.89	0.47	0.30	0.33	0.22	0.33	0.27	0.33	0.31
FC3	0.34	0.37	0.80	0.24	0.23	0.23	0.13	0.29	0.20	0.28	0.22
FC4	0.26	0.45	0.83	0.40	0.41	0.31	0.30	0.30	0.29	0.30	0.24
FR1	0.00	0.45	0.56	0.83	0.48	0.43	0.49	0.37	0.45	0.32	0.27
FR2	-0.17	0.43	0.37	0.92	0.43	0.35	0.51	0.36	0.40	0.25	0.23
FR3	-0.16	0.28	0.28	0.83	0.35	0.31	0.40	0.40	0.36	0.25	0.07
FR4	-0.12	0.36	0.31	0.89	0.38	0.33	0.49	0.41	0.34	0.22	0.16
FR5	-0.14	0.38	0.38	0.88	0.37	0.32	0.46	0.25	0.27	0.26	0.13
FR6	0.09	0.52	0.37	0.76	0.32	0.21	0.39	0.33	0.24	0.36	0.22
NT1	0.04	0.44	0.36	0.46	1.00	0.64	0.57	0.43	0.43	0.26	0.32
OU1	0.01	0.21	0.18	0.31	0.58	0.90	0.46	0.20	0.42	0.35	0.23
OU2	0.04	0.36	0.25	0.46	0.57	0.89	0.70	0.37	0.55	0.22	0.31
OU3	0.05	0.20	0.35	0.16	0.47	0.75	0.32	0.32	0.54	0.31	0.14
SE1	-0.10	0.35	0.23	0.54	0.60	0.66	0.85	0.47	0.48	0.10	0.17
SE2	-0.08	0.30	0.23	0.45	0.52	0.53	0.91	0.49	0.47	0.09	0.07
SE3	0.08	0.34	0.15	0.41	0.46	0.53	0.85	0.41	0.42	0.07	0.27
SE4	0.04	0.24	0.29	0.40	0.25	0.27	0.74	0.29	0.26	0.00	0.22
DP1	0.13	0.35	0.33	0.30	0.40	0.38	0.44	0.94	0.43	-0.02	0.09
DP2	0.01	0.37	0.35	0.47	0.42	0.30	0.52	0.95	0.41	0.05	0.08
DI1	0.11	0.34	0.28	0.37	0.40	0.62	0.49	0.36	0.90	0.21	0.23
DI2	-0.14	0.20	0.22	0.37	0.38	0.45	0.40	0.44	0.90	0.18	0.12
Fcond1	0.28	0.18	0.17	0.14	0.16	0.20	-0.09	-0.09	0.03	0.85	0.20
Fcond2	0.26	0.24	0.40	0.33	0.22	0.21	0.04	0.00	0.11	0.92	0.33
Fcond3	-0.17	0.14	0.12	0.25	0.26	0.49	0.31	0.18	0.50	0.47	0.02
PIIT1	0.48	0.37	0.36	0.20	0.30	0.25	0.20	0.09	0.20	0.28	0.93
PIIT2	0.45	0.21	0.23	-0.01	0.05	0.02	0.02	-0.03	-0.02	0.14	0.68
PIIT3	0.31	0.30	0.29	0.31	0.29	0.33	0.24	0.09	0.26	0.25	0.90
PIIT4	0.43	0.35	0.30	0.19	0.38	0.29	0.22	0.11	0.16	0.27	0.92

TR: Trying new features
FS: Feature substituting
FC: Feature combining
FR: Feature repurposing
NT: New task
OU: Other people's use
SE: Changes in system environment
DP: Discrepancies
DI: Deliberate initiatives
Fcond: Facilitating conditions
PIIT: Personal innovativeness in IT

Appendix F

Cluster Analysis

Similar to regression analysis, the PLS analyses conducted in this research revealed how the latent ASU construct changed in response to the changes in its antecedents. Such analyses, however, did not yield much insight into how people engage in different behavioral patterns of ASU when faced with different triggering conditions. Accordingly, this research conducted a cluster analysis to understand at a finer-grained level how people adapt their system use differently when faced with different triggering conditions. This helps to answer the second research question. Hence, the objectives of the cluster analysis were (1) to find heterogeneous triggering conditions delineated by the three types of triggers and then (2) to examine the ASU behaviors associated with each triggering condition.

Cluster analysis is a class of techniques used to classify cases (e.g., the 253 data points in this study) into groups that are relatively homogeneous within themselves and heterogeneous between each other, on the basis of a defined set of variables. Well-formed clusters are characterized by small intra-cluster distance and larger inter-cluster distance (Bapna et al. 2004). The three clearly distinguished types of triggers rendered a convenient vehicle for theory-driven cluster analysis (Aldenderfer and Blashfield 1984). The data points can be viewed as vectors of three variables: novel situations (NS), discrepancies (DP), and deliberative initiatives (DI). The 253 data points were expected to form several heterogeneous clusters in the three-dimensional space that could be interpretable as meaningful triggering conditions.

Given the exploratory nature of the research, a two-stage procedure was followed (Ketchen and Shook 1996). In the first stage, a hierarchical cluster analysis was done using SPSS (version 16.0.1); unweighted factor scores of the three triggers were calculated. Ward's minimum variance method was utilized for cluster formation and Euclidean distances were used as the similarity measure. A potentially thorny but essential issue in cluster analysis is the selection of the number of clusters (Bensaou and Venkataraman 1995). To determine the number of clusters, the amalgamation coefficients were consulted, which suggested a three-cluster solution.[1] In addition, the three-cluster solution yielded meaningful patterns of relationships among the variables, indicating the face validity of the solution (Hambrick 1983).

In the second stage, a nonhierarchical *K*-means cluster analysis was conducted. The *K*-means algorithm requires the *a priori* specification of the number of clusters (*K*). As suggested by the hierarchical cluster analyses, a *K* value of 3 was specified. An ANOVA analysis indicated that significant differences exist among the three clusters along all three dimensions (Table F1).

Table F1. Cluster Result ANOVA

	Mean Square Cluster	Mean Square Error	F	Significance
Novel Situations	111.977	1.131	99.020	.000
Discrepancies	235.779	1.008	233.860	.000
Deliberative Initiatives	214.012	1.089	196.435	.000

Table F2 shows the variable means and standard deviations related to each of the three clusters. The Bonferroni tests showed how the three clusters differ on specific triggers. Specifically, Cluster 1 has a higher level of NS and DI than Cluster 2, but they have the same high level of DP. Cluster 1 has a significantly higher level of all of the three triggers than Cluster 3. Cluster 2 has a higher level of DP than cluster 3. Table F3 highlights the meanings of the three clusters by showing their patterns of triggers.

Each class of triggering conditions was named based on the unique characteristics conveyed by the corresponding parameter values (Table F3). The first cluster is that of *intensive triggering conditions*. Most of the cases (149 out of 253 cases) fell into this category. This cluster is characterized by high levels for all three of the triggers. People in these situations are likely to experience high levels of all the three triggers at the same time. This confirms the early argument that it is common for multiple triggers to coexist. One reason is that the same external

[1]An amalgamation coefficient refers to the numerical value at which various cases merge to form a cluster (Aldenderfer and Blashfield 1984). A big jump of amalgamation coefficient implies that two relatively dissimilar clusters have been merged (Aldenderfer and Blashfield 1984). The proposed number of clusters equals the number of cases less the step number where a big jump of amalgamation coefficient is observed (i.e., an elbow point). At step 250 (the elbow point), a big jump of amalgamation coefficient of 234.138 (compared to 89.367 of the prior step) was observed. This suggested a three-cluster solution (= 253 – 250).

situation can evoke different triggers (Louis and Sutton 1991; Sproull and Hofmeister 1986). For example, during the shakedown stage—from the point the system starts being functional and accessible by users until normal use is achieved (Markus and Tanis 2000; Morris and Venkatesh 2010)—people often face new tasks or system-imposed new ways of work, frequently experience discrepancies when learning the new system, and often receive directions or demands from managers or IT people and other users regarding use of the system. Nevertheless, intensive triggering conditions are not limited to early stages of system implementation. It is easy to imagine dynamic working conditions where people constantly receive various types of triggers. For example, a programmer is likely to receive new coding tasks (novel situations), experience changes/upgrades in programming tools (novel situations), encounter system failures/bugs (discrepancies), and demands from the project manager to use certain programming features for compatibility or communication purposes (deliberate initiatives). Also, Louis and Sutton (1991) suggested that, when joining a new organization, a person often experiences multiple triggers at once. When one joins a new organization and uses that organization's information system for the first time, he/she may be in an intensive triggering situation.

Table F2. Cluster Center and Comparison (Bonferroni tests)

	Mean (S.D.) of Cluster Groups			Significant Contrast Values (Bonferroni tests)†
	Cluster 1 (n = 149)	Cluster 2 (n = 48)	Cluster 3 (n = 56)	
Novel Situations (NS)	4.70 (0.99)	3.09 (1.29)	2.58 (1.04)	1–2***, 1-3***, 2-3 (ns)
Discrepancies (DP)	4.8 (1.09)	4.9 (1.04)	1.5 (0.66)	1–2(ns), 1-3***, 2-3***
Deliberative Initiatives (DI)	4.6 (1.03)	2.0 (1.04)	2.0 (1.09)	1–2***, 1-3***, 2-3 (ns)

†Test of significant differences across cluster groups using one-way ANOVA..
***p < 0.001; ns: non-significant at 0.05.

Table F3. The Clusters' Patters of Triggers

	Novel Situations	Discrepancies	Deliberative Initiatives
Cluster 1: Intensive Triggering conditions (n=149)	High	High	High
Cluster 2: Discrepancy triggering conditions (n=48)	Low	High	Low
Cluster 3: Non-intensive Triggering conditions (n = 56)	Low	Low	Low

The second cluster is named *discrepancy triggering conditions* because it is characterized by a combination of high levels of discrepancies and low levels of novel situations and deliberative initiatives. Among the three types of triggers, discrepancies stand out as their own independent cluster. This cluster represents interactions between the user and the system with little external disturbance. The identification of the discrepancies triggering conditions led to the question if there are NS or DI triggering conditions. The raw data were examined and few combinations of "high NS/high DP/low DI" and "low NS/high DP/high DI" were found. This indicates that high NS and high DI are often accompanied by high DP. Moreover, these combinations were categorized into the discrepancy triggering conditions. From this, a preliminary conclusion can be drawn that, although novel situation or deliberate initiative-only situations are possible, they are rare and are often accompanied by discrepancies. This finding supports the early argument that NS and DI often give rise to discrepancies.

The third cluster is *non-intensive triggering conditions,* characterized by low levels of all three types of triggers. This may be found in a routine work environment, where people do routine tasks, face few demands from other people regarding how to use the system, and rarely face serious discrepancies at work. In such conditions, people may not have the motivation to change how they use system features. In addition, non-intensive triggering conditions may also capture the self-initiated reflections on one's system use. People may occasionally reflect upon their own system use, without salient external triggers.

The central thesis of the cluster analysis was that users have different behavioral patterns pertaining to ASU behaviors in different triggering conditions. A one-way ANOVA was utilized to test the differences in ASU across the three clusters identified above. The results showed significant F values for feature substituting, feature combining, and feature repurposing, indicating that these three types of ASU behaviors are significantly different across the three triggering conditions (Table F4). The F value for trying new features is not significant, implying that trying new features does not differ significantly across the triggering conditions.

Table F4. ANOVA: Adaptive System Use Across Triggering Conditions						
		SS	d.f.	MS	F	P-value
Trying New Features	Between Groups	3.614	2	1.807	1.109	.332
	Within Groups	407.463	250	1.630		
	Total	411.077	252			
Feature substituting	Between Groups	89.618	2	44.809	17.291	.000
	Within Groups	647.880	250	2.592		
	Total	737.497	252			
Feature combining	Between Groups	75.792	2	37.896	19.227	.000
	Within Groups	492.738	250	1.971		
	Total	568.530	252			
Feature Repurposing	Between Groups	120.766	2	60.383	28.180	.000
	Within Groups	535.696	250	2.143		
	Total	656.462	252			

Paired comparisons with the Bonferroni adjustment were analyzed (Table F5). The analysis yielded several findings. First, people perform ASU behaviors differently under the three triggering conditions. In both intensive triggering conditions and discrepancy triggering conditions, levels of feature substituting, feature combining, and feature repurposing were significantly higher than in non-intensive triggering conditions. Intensive triggering conditions have a higher level of feature repurposing than discrepancy triggering conditions. Second, in all three of the triggering conditions, trying new features has the highest means, indicating that trying new features is a popular behavior and people perform it frequently under all types of triggering conditions. In contrast, feature repurposing has the lowest means in all the triggering conditions, suggesting that feature repurposing is a relatively rare ASU behavior. Third, trying new features does not seem to define any cluster: the means of trying new features did not differ significantly across the three clusters. Feature substituting and feature combining differ significantly between non-intensive triggering conditions and the other two triggering conditions, but not between discrepancy triggering conditions and intensive triggering conditions. This may indicate that once triggers become fairly intensive, people will begin to combine and substitute features. The three triggering conditions are significantly different in terms of feature repurposing. That is, feature repurposing is a definitive characteristic that distinguishes between the three triggering conditions.

Table F5. Adaptive System Use in Different Triggering Conditions						
	Mean (S.D.) of Cluster Groups†			Paired Comparison: Mean (Std. Error, P-value)‡		
	1. Intensive triggering conditions (n = 149)	2. Discrepancies triggering condition (n = 48)	3. Non-intensive triggering conditions (n = 56)	1 vs. 2	1 vs. 3	2 vs. 3
Trying new features	5.50 (1.26)	5.81 (1.31)	5.56 (1.30)	-0.31 (0.21, 0.41)	-0.06 (0.20, 1.00)	0.25 (0.25, 0.96)
Feature substituting	4.92 (1.47)	4.56 (1.65)	3.44 (1.92)	0.36 (0.27, 0.51)	1.48 (0.25, 0.00)	1.12 (0.32, 0.00)
Feature combining	4.85 (1.32)	4.84 (1.56)	3.53 (1.49)	0.01 (0.23, 1.00)	1.32 (0.22, 0.00)	1.31 (0.28, 0.00)
Feature repurposing	4.06 (1.37)	3.26 (1.51)	2.37 (1.65)	0.80 (0.24, 0.00)	1.69 (0.23, 0.00)	0.89 (0.29, 0.01)

†The means are the users' answers regarding an ASU behavior on a seven-point Likert scale. For a specific ASU behavior, 1 means the user strongly believed that it was not performed; 4 means neutral; 7 means the user strongly believes that it was performed.
‡Significant (p<0.01) comparisons are highlighted in shade.

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