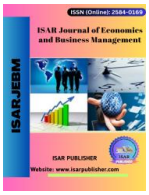
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Local Organizational Innovation and Learning during Prolonged Crises: Mixed-Methods Evidence from a Public University

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Abstract:

Purpose

This study examines how employees at a public university introduced, used, and retained organizational practices during overlapping crises. It also explores how lessons developed within individual units might support learning across the wider university.

Design/methodology/approach

The study uses a mixed-methods design. Quantitative data were collected through a survey of 389 Lebanese University employees working in academic, administrative, technical, and institutional roles. Qualitative data came from ten semi-structured interviews. The two strands were first analysed separately and then brought together through a joint display that connected the survey categories with the interview themes.

Findings

The twelve innovation items formed a coherent overall measure of perceived organizational innovation (Cronbach's $\alpha = 0.932$; $M = 3.009$ out of 5). The quantitative results did not provide strong evidence that the items represented four clearly separate empirical dimensions. The interviews nevertheless showed meaningful practical differences between the introduction, use, and continuation of practices. Participants described colleague-led digital training, locally developed responses to operational problems, the renewed use of a registration platform created before the crisis, and selected practices that remained useful after the most acute period of disruption. Participants offered more suggestions for sharing knowledge across university units than examples of established cross-unit knowledge transfer.

Research limitations/implications

The cross-sectional survey limits the extent to which the findings can be generalized. It also cannot show directly how practices spread, were adapted, or became institutionalized over time.

Practical implications

In geographically dispersed public universities with limited resources, managers could document locally useful adjustments, identify the employees who can explain how those adjustments work, and assess whether other units could adapt them to their own circumstances.

Social implications

Improving access to practical organizational knowledge may help public universities maintain teaching, student services, registration, and administrative operations during future disruptions.

Originality/value

The study distinguishes between practices created in response to a crisis and pre-existing capabilities that became especially valuable during a crisis. It also separates the continued use of a practice within one setting from the broader organizational learning required for that practice to be understood, adapted, and used elsewhere.

The core managerial contribution is not a four-stage model of innovation. It is an empirically qualified distinction between (i) locally initiated practices, (ii) pre-existing organizational capabilities activated under disruption, and (iii) practices continued locally without demonstrated inter-unit transfer. These pathways have different management requirements and should not be collapsed into a general claim of institutional learning.

Keywords: organizational innovation; organizational learning; knowledge transfer; prolonged crises; public organizations; mixed methods.

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1. Introduction

When a crisis interrupts university operations, employees must do more than move classes from physical rooms to digital platforms. They must also keep registration, teaching, student support, communication, and coordination functioning, often with limited staff, equipment, and funding. Research on emergency remote teaching has documented the extensive adjustments universities made during the COVID-19 pandemic (Bond et al., 2021; Bartuseviënié et al., 2021). Less attention has been given to a management question that becomes increasingly important after the initial response: which adjustments remain useful, and what happens to the knowledge employees gain while putting them into practice?

This question is closely connected to organizational innovation. Under the Oslo Manual, an idea becomes an innovation when it is implemented rather than merely proposed (OECD/Eurostat, 2018). Timing also matters. Some practices are designed specifically to address an immediate crisis. Others existed before the disruption but become more important when normal arrangements are no longer available. A further question concerns what happens after the immediate need has passed. Employees may continue using a practice, adapt it, or abandon it. They may also share what they learned with colleagues in the same unit or with staff in other parts of the university.

Introducing a practice, using it in everyday work, continuing it after the crisis, and transferring knowledge about it are therefore related but distinct processes. A practice can be implemented without becoming permanent. It can remain useful in one department without being suitable for another. It can also generate valuable experience even when the original procedure is later discontinued.

This separation also sets a boundary on the study's claims: the evidence concerns employees' perceptions and reported local practices, not observed diffusion trajectories or university-wide institutionalization. A useful crisis response may be an adaptive application of an existing resource rather than a novel innovation in the strict sense of the Oslo Manual (OECD/Eurostat, 2018).

This study examines these distinctions at the Lebanese University through a survey of 389 employees and interviews with ten people working in academic, administrative, technical, and institutional roles. It addresses three questions:

1. How do employees perceive the introduction, implementation, adoption, and continuation of organizational practices during prolonged crises?
2. What do interview accounts reveal about where these practices came from and how they were used in daily work?
3. What do the combined findings suggest about the opportunities and barriers involved in learning across a geographically dispersed university?

The study makes two contributions to management research. First, it combines an overall measure of perceived innovation with accounts of concrete practices. This prevents the presence of digital tools from being treated automatically as evidence of broad organizational transformation. Second, it separates local problem-solving and continued local use from the more demanding task of making experience accessible to other units. This distinction matters for managers because a solution that works well in one setting may require explanation, support, maintenance, or adaptation before another unit can use it.

Our theoretical claim is deliberately conditional: rather than proposing that crises produce innovation, we explain why organizational managers should distinguish the origin of a practice, the resources required for its use, and the evidence needed before its continuation or transfer can be inferred. This permits a sharper dialogue between innovation

implementation and the 'stickiness' of knowledge transfer (Klein and Sorra, 1996; Szulanski, 1996).

The Lebanese University provides a useful setting for this analysis. The COVID-19 pandemic, recurrent interruptions to campus activity, and wider instability placed sustained pressure on university operations (Akar, 2023). Rather than assuming that crisis conditions automatically produce innovation, this study examines the responses employees actually described and the practices they considered worth retaining.

2. Literature Review and Analytical Framework

2.1 From novelty to implemented innovation

Organizational innovation does not necessarily mean adopting a new technology. It may involve changes to work procedures, coordination arrangements, administrative routines, or management practices. Birkinshaw et al. (2008) focus on changes in the way managerial work is performed, while Crossan and Apaydin (2010) distinguish between the innovation process and the outcomes it produces. The Oslo Manual similarly emphasizes implementation: a proposal or intention is not enough for a practice to qualify as an innovation (OECD/Eurostat, 2018).

This distinction is particularly important in a crisis. An emergency workaround may be suggested, tested briefly, used repeatedly, or integrated into regular operations. Each stage has different implications. A practice that is announced but never used has not had the same organizational significance as one that employees rely on to maintain essential services.

A practice may also be new to one unit even if it is familiar elsewhere. It may be implemented successfully without becoming permanent or being adopted across the wider university. For this reason, this study distinguishes implementation from continuation, internal transfer, and institutionalization. A procedure that works with one unit's equipment, staffing structure, timetable, or responsibilities may not fit another unit without modification. Managers therefore need to ask not only whether a response was useful, but also what information and support another unit would need before deciding whether to adopt or adapt it.

Three management processes should therefore be distinguished analytically. Mobilization requires locating and maintaining an existing capability; implementation requires enabling an actionable local solution and supporting its use; transfer requires evidence that recipients elsewhere could understand and adopt or adapt it. A report of local continuation supplies evidence for the second process, not the third (Szulanski, 1996; Walsh and Ungson, 1991).

2.2 Local initiatives and the circulation of practices

During disruption, employees often turn first to colleagues who understand the immediate problem. Faraj and Xiao (2006) explain why the coordination of specialized knowledge is important in organizations that must respond quickly. A university department dealing with interrupted teaching, registration, or student support may similarly depend on people who know its systems and practical constraints.

Solving a problem locally, however, is not the same as explaining the solution to another department. Local problem-solving depends on situated experience, informal communication, and rapid coordination. Sharing the solution requires a clearer account of what changed, how the change worked, what resources it required, and what conditions made it possible.

Research on higher education has identified the fragmentation of digital initiatives (Fernández et al., 2023), while Palumbo and Manna (2019) discuss organizational conditions that support change. Studies of Lebanese private universities have also examined how institutional cultures respond to turbulence (Nauffal and Nader, 2022). The present study focuses on a public university whose faculties and regional branches share an institutional framework but operate under different local conditions.

In this setting, a useful innovation cannot be evaluated only by asking whether it was introduced. Its wider relevance also depends on what another unit would need in order to reproduce or adapt it. A workaround may depend on a particular timetable, a highly skilled employee, or a locally available platform. These details become important when another unit tries to understand or reuse the practice.

Research on internal knowledge transfer has shown that practices often remain difficult to move beyond the context in which they were developed (Szulanski, 1996; Perrin and Rolland, 2007). Transfer should therefore be understood as a situated process that may involve adaptation rather than an identical copy of the original procedure.

2.3 Collective learning and the continuation of innovation

Knowledge sharing raises a practical question: who can use what employees learned from an innovation, and under what conditions? Kim et al. (2025) report a relationship between knowledge sharing and innovative work behaviour among higher education employees. Li et al. (2023) show how information can be collected and used within a university crisis-management system. Taken together, this work points to two complementary forms of support. Conversations, demonstrations, and peer assistance help colleagues understand a practice, while written records can preserve

important details after the people who first used the practice have moved on.

Knowledge transfer, adoption, and institutionalization should not be treated as synonyms. Knowledge may be made available without being used elsewhere. A receiving unit may adapt a practice without turning it into a formal institutional procedure. Szulanski (1996) and Perrin and Rolland (2007) explain why access to knowledge does not guarantee successful transfer.

Recent work has also examined which university innovation proposals are implemented (Muñoz-Villamizar and Roncancio, 2026) and how digital changes become more established over time (Vaz et al., 2026). Walsh and Ungson (1991) add the idea of organizational memory: an organization may retain information from earlier experience in a form that can later be retrieved, even when the people or projects associated with that experience have changed.

A record, however, cannot by itself demonstrate that another unit has adopted the practice it describes. Continued local use is evidence that a practice persists in that setting; it is not evidence of university-wide institutionalization. Research on the transfer of best practices emphasizes the importance of employee involvement and communication (Jarrar and Zairi, 2000), while Perrin (2006) examines the organizational work involved in moving practices across boundaries.

A discontinued practice may still leave behind valuable knowledge. Employees may learn which tools were ineffective, which contacts were helpful, or which coordination arrangements saved time. That experience may be useful during a later disruption even if the original procedure is no longer appropriate. In Walsh and Ungson's (1991) sense, organizational memory concerns retrievable experience rather than the permanent preservation of every emergency measure.

Accordingly, participants' suggestions for documentation should be understood as proposals for preserving learning opportunities. They should not be interpreted as evidence that a functioning university-wide knowledge repository already exists.

An important rival explanation is that limited cross-unit diffusion may stem not only from insufficient documentation but also from mismatched resources, work routines and receiving-unit capacity. The literature on internal stickiness cautions against treating information availability as proof of transfer (Szulanski, 1996). These possibilities are discussed as explanations, not tested mechanisms.

2.4 Analytical framework

The analytical framework separates two levels of inquiry. At the practice level, the survey examines employees' perceptions of the introduction, implementation, adoption, and continuation of organizational practices. At the organizational level, the interviews explore how colleagues supported those practices and what would be needed for other units to learn from them.

The interview accounts are interpreted through five related considerations: professional autonomy, peer support, resource availability, coordination, and institutional procedures. Formal rules can provide consistency, while local discretion allows employees to respond to immediate operational difficulties (Meyer and Rowan, 1977).

This distinction is important when interpreting individual examples. A useful local adjustment may continue, be adapted elsewhere, or stop when circumstances change. Similarly, a registration system created before the crisis may become essential during the crisis without being a newly invented response. Separating the origin of a practice from its use and possible transfer prevents every reported adjustment from being treated as evidence of university-wide learning.

The four innovation categories guide both the questionnaire and the joint display. Factor analyses assess whether survey responses distinguish these categories empirically. The interview themes then clarify what employees meant when they discussed the introduction, use, and continuation of practices. Because the survey does not track specific practices across university branches, transfer and formal institutionalization remain matters for interpretation and future research rather than outcomes claimed by this study.

3. Methodology

3.1 Mixed-methods design and research setting

The research combines a staff survey with ten semi-structured interviews at the Lebanese University, Lebanon's only public university. The university operates through faculties, institutes, and regional branches (Lebanese University, n.d.). Interviews were conducted between January and April 2026, while the online survey was open from April to August 2026. The collection periods therefore overlapped slightly. The questionnaire was not changed during the survey period.

The two datasets were analysed separately and then integrated by theme through a joint display (Fetters et al., 2013; Guetterman et al., 2015). The study focuses on the organizational practices employees reported using rather than assuming that all units experienced disruption in the same way or responded with identical solutions.

3.2 Sample and measurement of innovation

Of the 389 respondents, 213 were academic employees (54.8%), 103 were administrative employees (26.5%), 52 were technical employees (13.4%), and 21 were managers or employees with institutional responsibilities (5.4%). As the questionnaire was distributed through multiple channels, the total number of individuals who received the survey invitation could not be determined. Consequently, a reliable response rate could not be calculated.

Perceived organizational innovation was measured using twelve five-point Likert-type items (R17–R28), developed as part of a broader doctoral questionnaire. Item development was informed by established conceptual literature on organizational innovativeness (Wang and Ahmed, 2004; OECD/Eurostat, 2018), innovation implementation (Klein and Sorra, 1996), technology acceptance (Davis, 1989), and innovation diffusion (Rogers, 2003).

Rather than adopting a single previously validated scale, the study employed a context-specific instrument designed to capture employees' perceptions of organizational innovation during prolonged crises. Its internal consistency and dimensionality were assessed through reliability and factor analyses, as reported in the Results section. Although internal consistency provides evidence regarding the coherence of item responses, it does not, by itself, establish construct validity (Tavakol and Dennick, 2011). Furthermore, the factor analyses were conducted using the same sample, and measurement equivalence between the French and Arabic versions was not independently assessed.

The twelve items were initially organized into four conceptually defined categories:

- **Introduction:** the introduction of new working methods and procedures (R17–R19);
- **Implementation:** the implementation of these methods and procedures in organizational activities (R20–R22);
- **Adoption:** their use in everyday professional practices (R23–R25); and
- **Continuation:** their reported continued use beyond the acute phase of the crisis (R26–R28).

These categories were used to distinguish different aspects of perceived organizational innovation without assuming that they represented empirically independent dimensions or successive stages of a fixed process. Introducing a new procedure does not necessarily imply its adoption by employees, just as its use during a crisis does not guarantee its continuation afterward.

The broader questionnaire was piloted with 30 respondents before the main survey. This preliminary exercise supported the preparation of the research instrument but was not treated as sufficient evidence of content validity or measurement equivalence between the French and Arabic versions.

The overall innovation score was calculated as the mean of the twelve items, without reverse coding, using 389 complete responses.

The resulting score represents employees' perceptions of innovation-related changes in their working environments, including the introduction, implementation, adoption, and reported continuation of organizational practices. It does not directly establish whether specific practices were transferred between university branches or formally institutionalized. Accordingly, the four conceptual categories were retained as an organizing framework for the qualitative analysis, while their empirical distinctiveness was examined through the quantitative analyses.

Quantitative analyses

For the twelve innovation items, we calculated Cronbach's alpha, a non-parametric bootstrap confidence interval, corrected item-rest correlations, and alpha values after item deletion. The Kaiser–Meyer–Olkin measure and Bartlett's test were used to assess factorability.

Maximum-likelihood exploratory factor analysis, supported by parallel analysis, was used to examine dimensionality. Confirmatory models compared a general factor with a model containing four correlated factors. Both models were estimated using the same 389 responses, with the five-point items treated as approximately continuous. The findings therefore provide a within-sample assessment of the measure's structure rather than an independent confirmation of the exploratory solution.

Exploratory tests compared innovation ratings across staff characteristics and reported crisis exposure. The Benjamini–Hochberg procedure was applied to 24 comparisons. Effect sizes were reported alongside significance tests. Because the survey was cross-sectional, any differences were interpreted as associations rather than effects caused by particular crises.

3.3 Interviews and integration

Ten interviewees were purposively selected to represent academic, administrative, technical, and institutional responsibilities. Four interviews took place in person and six were conducted through Zoom. The interview guide, available in French and Arabic, addressed crisis-management practices, innovation, staff experience, and organizational conditions.

Before each interview, participants were informed about the purpose of the study. They gave verbal consent to participate and to have the interview audio-recorded. Their accounts are presented using the identifiers P1–P10. Software-assisted transcriptions were reviewed as working research documents. This description does not imply that every passage was independently checked word for word against the original recordings.

The analysis used a hybrid thematic approach that combined categories derived from the research framework with themes that emerged from the interview accounts (Fereday and Muir-Cochrane, 2006). Coding was documented in Word and Excel. Each coded segment was linked to a participant identifier, a source document, and a thematic code so that interpretations could be traced back to the interview material.

To improve analytic transparency, the qualitative synthesis explicitly separates (a) participants' reported actions and retained practices, (b) their retrospective explanations and (c) proposed practices that they wished the institution to introduce. Interview accounts remain first-person or second-hand reports, not direct observations of implementation or transfer (Braun and Clarke, 2006).

For this article, the analysis focused on locally initiated changes, the use of existing systems, peer assistance, continued practices, and participants' proposals for knowledge sharing. Accounts of arrangements that participants had already used were kept separate from suggestions about systems or procedures they wanted the university to introduce.

Survey respondents and interviewees were not individually matched. The joint display therefore aligns the four survey categories with the interview themes rather than comparing two accounts from the same person. The interviews are used to contextualize survey patterns, not to claim causal confirmation or case-level triangulation.

Integration is conducted at the level of conceptual categories rather than linked individuals or specific innovations. Therefore, convergence means consistency of interpretation between the overall survey pattern and interview narratives, not triangulation of the same case or confirmation of a temporal sequence (Fetters et al., 2013; Guetterman et al., 2015).

3.4 Ethical considerations

Participation in the interviews was voluntary. Participants received an explanation of the study and gave oral consent to take part and to be audio-recorded. Their accounts are presented under the codes P1–P10 rather than their names. No separate research ethics committee approval was obtained for this study.

4. Results

4.1 Perceived innovation and internal consistency

The mean overall innovation score was 3.009 out of 5 (SD = 0.802). Internal consistency was high (α = 0.932; 95% bootstrap CI [0.922, 0.941]). Scores across the four conceptual groups were similar, and their alpha coefficients ranged from 0.733 to 0.797 (Table I).

These results indicate that respondents gave broadly comparable ratings to the introduction, implementation, adoption, and continuation of organizational practices. The next analyses examine whether this conceptual distinction is also reflected in the structure of the responses.

Table I. Descriptive statistics for perceived organizational innovation (n = 389)

Measure	Items	Mean (SD)	Cronbach's α
Overall innovation score	R17–R28	3.009 (0.802)	0.932
Introduction	R17–R19	3.001 (0.909)	0.797
Implementation	R20–R22	3.009 (0.874)	0.795
Adoption	R23–R25	3.033 (0.887)	0.782
Continuation	R26–R28	2.993 (0.858)	0.733

4.2 Measurement structure of organizational innovation

Corrected item-rest correlations ranged from 0.651 to 0.741. Removing any item reduced the overall alpha to between 0.925 and 0.928. The data were suitable for factor analysis (KMO = 0.968; Bartlett's $\chi^2(66) = 2{,}537.39$, $p < 0.001$).

The first eigenvalue was 6.877 and accounted for 57.3% of the standardized variance. Parallel analysis supported a one-factor solution, with factor loadings ranging from 0.676 to 0.769. These results provide within-sample support for using an overall score to represent perceived organizational innovation.

Both confirmatory specifications showed close fit. However, the one-factor model produced lower information criteria (Table II), while the correlations among the four factors in the alternative model were extremely high, ranging from 0.966 to 0.994. These findings support the use of an overall score in this sample.

The four labels remain useful for organizing the interview findings, but they should not be interpreted as four independently validated statistical scales.

The numerical pattern in Table II further favors parsimony: one-factor AIC = 93.70 and BIC = 188.82, compared with 100.72 and 219.63 for four correlated factors. Extremely high inter-factor correlations (0.966–0.994, as reported in the manuscript) offer little empirical basis for distinct constructs. The good fit of both models does not overcome this discriminant-validity problem (Henseler et al., 2015).

Table II. Comparison of factor models estimated on the same sample

Index	One factor	Four correlated factors
χ^2 (df)	45.70 (54)	40.72 (48)
P	0.782	0.763
CFI	1.000	1.000
RMSEA	0.000	0.000
SRMR	0.019	0.018
AIC (relative)	93.70	100.72
BIC (relative)	188.82	219.63

4.3 Reported crisis exposure: an exploratory finding

Across the 24 exploratory comparisons, only the association between reported crisis exposure and perceived introduction remained statistically significant after Benjamini–Hochberg adjustment. The Kruskal–Wallis result was $H(4) = 17.127$, with an unadjusted p-value of 0.0018, an adjusted p-value of 0.044, and $\varepsilon^2 = 0.034$.

Mean introduction scores for respondents reporting one, two, three, four, and at least five crises were 2.693, 3.156, 3.077, 2.753, and 2.667, respectively. Ratings were highest among the two- and three-crisis groups rather than increasing steadily with the number of crises reported.

The effect was small. The pattern therefore does not support interpreting repeated crisis exposure as a cumulative "crisis dose" that automatically produces higher innovation ratings.

4.4 Initiatives, use, and continuation: evidence from the interviews

Interviewees described changes that were closely connected to immediate work demands. P1 discussed the move to online teaching and the wider use of digital tools. P2 recalled the use of Microsoft Teams and training provided from colleague to colleague. P3 described campus responses designed to keep essential operations running. P5 emphasized initiatives developed by individuals and IT teams when no common digital strategy was available.

Together, these examples show how employees relied on practical expertise and professional relationships when established routines were interrupted.

P4 described a different path. An online registration platform developed in 2015 became particularly valuable during the COVID-19 disruption. This was not a system invented in response to the emergency. It was an existing capability whose value increased when normal service arrangements became difficult to maintain.

The example demonstrates why crisis-related innovation should distinguish newly created solutions from earlier investments that are mobilized at a critical moment.

This distinction also matters when comparing the findings with longitudinal research on digital transformation during crises (Vaz et al., 2026). Institutional usage records can trace how a technology changes over time. The present study, by contrast, relies on staff accounts of implementation. Those accounts help identify who used and supported a practice, but they cannot independently establish how frequently it was used across the institution.

Interviewees also described selective continuation. P7 reported that teachers developed digital skills and kept some of the new working arrangements after the most immediate disruption had passed. P8 emphasized the value of testing small local initiatives before considering wider use. P9

described adjustments and alternative uses of available tools that continued to be helpful.

These examples suggest that employees evaluated practices in relation to everyday tasks rather than assuming that every emergency response should become permanent.

Other participants focused on what should happen next. P6 argued that promising initiatives should be evaluated and formalized. P9 proposed a knowledge base containing technical incidents, solutions, and useful contacts. P10 emphasized the importance of preserving lessons and identifying practices that might be relevant to other units.

These statements are recommendations from interviewees. They should not be read as descriptions of an established university-wide system for knowledge transfer.

Participants' roles shaped the issues they noticed. P1 focused on teaching pressures and the university's public mission. P3 contrasted local coordination with slower central responses. P4 and P5 emphasized technical expertise and the organizational support needed to make that expertise useful. P6 drew attention to the transfer of critical skills.

Taken together, the accounts suggest that relevant knowledge is distributed across academic, administrative, and technical functions rather than being held by one service or one category of employee.

Three observations recur across the interviews:

1. Employees developed or mobilized workable responses to immediate problems.
2. Colleagues helped one another learn and use those responses.
3. Some practices remained useful after the initial disruption.

Participants also described ways the university could document lessons more systematically. It is important, however, to distinguish the practices they reported from the future arrangements they proposed.

4.5 Integration of quantitative and qualitative findings

Table III connects the survey's four conceptual categories with the practices described in the interviews. The survey presents a coherent overall pattern of perceived innovation. The interviews identify different origins and uses of the practices behind those ratings.

The interviews also distinguish peer-supported adoption from the more ambitious possibility of sharing practical knowledge across branches. The joint display therefore connects employees' general perceptions with concrete accounts without treating the two sources as observations of the same individual or the same practice.

Table III. Thematic integration of findings (joint display)

Theme	Survey findings	Interview insights	Integrated interpretation
Introduction	M = 3.001	P1 and P2: digital practices used during disruption; P4: earlier registration platform mobilized later; P5: staff- and team-led IT solutions	New initiatives and the renewed use of earlier capabilities represent distinct origins of innovation
Implementation	M = 3.009	P2: colleague-to-colleague training; P3: locally developed campus responses; P8: scope for local trials	Everyday implementation drew on situated expertise and peer support; P8 describes a possibility rather than a documented transfer
Adoption	M = 3.033	P7: digital teaching skills; P9: alternative uses of tools and work methods	Actual use depended on adaptation to staff tasks and local constraints
Continuation	M = 2.993	P7 and P9: selected practices retained; P6 and P10: proposals for recording and sharing lessons	Reported local continuation is distinct from participants' proposals for wider institutional learning

The overall survey score does not reveal whether a practice was invented during a crisis, adapted from an older system, or retained because it proved useful. The interviews provide those distinctions. At the same time, individual interviews cannot show how common each experience was among the wider workforce. Each strand therefore addresses a different part of the research question.

The results are complementary rather than duplicative. Survey responses suggest that introduction, implementation, adoption, and continuation are closely related in employees' ratings. The interviews nevertheless reveal practical differences among these activities: launching online work, teaching colleagues to use digital tools, reactivating existing systems, and deciding which adjustments should be retained.

The qualitative categories remain useful even though the quantitative evidence favors a single overall factor. This is an interpretive distinction, not a claim that the interviews independently validate four separate statistical dimensions.

For example, the survey cannot identify the registration platform developed in 2015 as a pre-existing resource, whereas P4's interview account can. Conversely, P4's example cannot show how common comparable experiences were among the 389 survey respondents. The value of integration is therefore explanatory rather than a claim that one dataset confirms the other at the participant level.

P2's account of peer training helps explain how a tool became usable in one working context. P4's registration-platform example shows that useful crisis responses may draw on capabilities developed before the crisis. P6, P9, and P10 point toward documentation and knowledge sharing, but their suggestions cannot establish that transfer already occurs systematically.

The mixed-methods contribution lies in considering these accounts together without confusing local use with wider institutional learning.

5. Discussion

5.1 How practices became useful during prolonged crises

The interviews identify two main ways in which practices became useful during prolonged crises. Some employees introduced immediate responses, such as online teaching arrangements and local changes in coordination. Others drew on capabilities that had been developed earlier, particularly the registration platform described by P4.

These two routes require different forms of management support. New practices may need experimentation, peer assistance, and short-term training. Existing systems may depend more on maintenance, reliable access, and the continuity of technical expertise.

This distinction yields a practical decision framework for managers: when a practice is newly developed, evaluate usability and local fit; when an older capability is activated, assess maintenance and readiness; when wider transfer is desired, examine the resources, local adaptation and receiving-unit support required. These are proposed managerial decisions, not intervention outcomes measured in the study.

Vaz et al. (2026) use longitudinal evidence to examine digital change during crises. The present interviews add the perspective of the academic, administrative, and technical employees responsible for making particular arrangements work. Their accounts show why it is important to identify the origin and everyday use of a practice rather than assuming that every digital adjustment represents a new institutional innovation.

For managers, a useful starting point is to ask what problem an adjustment solved and what enabled employees to use it. A newly improvised teaching routine may require demonstrations, peer support, or additional training. An established registration system may instead require technical maintenance and dependable access. Distinguishing between these cases makes it easier to match resources to the practice that needs to be sustained.

5.2 From local initiative to shared practice: the role of knowledge transfer

Interviewees described knowledge sharing primarily through immediate working relationships. P2's account of peer training shows how a digital tool became usable for colleagues. P7 and P9 reported that some adjustments continued in use. P6, P9, and P10 spoke about recording lessons more systematically.

These forms of evidence should be kept separate. The first concerns practices that participants reported using. The second concerns arrangements they wanted the university to develop.

The accounts are consistent with research showing that knowledge sharing can support innovative work behaviour in higher education (Kim et al., 2025), while Szulanski (1996) and Perrin and Rolland (2007) explain why knowledge useful to its originator may remain difficult for others to use.

The Lebanese University interviews draw attention to the importance of people who can explain a solution in practical terms and to institutional arrangements that make such expertise easier to locate.

A record of a successful workaround may be useful, but a written description cannot fully replace a demonstration or a conversation with the people who used it. Other units may have different equipment, staffing arrangements, or responsibilities. Participants' proposals for knowledge bases should therefore be understood alongside the peer learning already described, rather than as an argument for copying every local arrangement into a standard procedure.

Alternative explanations deserve consideration: a practice may not travel because it is genuinely context-specific, because other units lack compatible resources, or because staff do not recognize its relevance. Intra-organizational

knowledge-transfer research identifies such 'stickiness' problems and discourages equating documentation with adoption (Szulanski, 1996; Perrin and Rolland, 2007).

The registration platform described by P4 offers another lesson. Organizations may benefit from systems and knowledge retained from before a disruption begins. Keeping the system functional and preserving the expertise required to operate it may be as important as introducing a new emergency measure.

This supports an organizational-memory perspective, but it does not establish that all such capabilities are currently accessible across the institution.

5.3 Local autonomy, institutional rules, and the scope of the findings

Local discretion and university-wide coordination offer different strengths. Employees closest to a disrupted activity may recognize a workable adjustment quickly. Institution-wide processes can provide resources, clarify responsibilities, and make lessons easier to locate. Palumbo and Manna (2019) identify organizational conditions relevant to change. The present interviews show why those conditions matter when faculties and branches share a public mission but do not have identical resources.

The survey favors an overall score of perceived innovation because ratings of introduction, implementation, adoption, and continuation were closely related. The small and non-monotonic association with crisis exposure does not show that repeated crises automatically produce more innovation. Nor do the cross-sectional responses establish a sequence in which one type of change necessarily leads to another.

The combined evidence separates the continuation of local adjustments from the circulation of knowledge about those adjustments. Interviewees described practices they used or retained in their own settings. Other participants proposed mechanisms for documenting and sharing lessons. The survey records perceptions rather than tracking particular practices across branches.

The findings therefore cannot demonstrate that local responses became established university-wide routines.

This limitation is especially important in a geographically dispersed public university. An administrative unit and an academic department may experience similar interruptions but rely on different systems, skills, and work processes. A useful lesson is therefore not automatically a procedure to replicate. Managers would need information about its purpose, operating conditions, and required expertise before another unit could decide whether to adopt or adapt it (Szulanski, 1996).

The study contributes to management research by separating three outcomes that are often treated as if they were the same:

1. introducing a practice;
2. continuing to use it locally; and
3. making knowledge about it available beyond the original unit.

The survey shows that employees experience innovation-related changes as a closely connected set of activities. The interviews distinguish the practical routes behind those ratings: local problem-solving, peer assistance, and the renewed use of technical investments developed earlier.

The interviews also reveal an interest in more systematic organizational learning without establishing that such learning has already been institutionalized.

This distinction clarifies what organizational learning can mean in this setting. P2’s account concerns knowledge shared between colleagues. P7 and P9 describe selected practices that remained useful in their local settings. Neither observation, by itself, establishes an organizational memory accessible to the entire university.

Walsh and Ungson (1991) help explain why retaining experience matters, while Szulanski (1996) shows why transfer remains difficult even when a practice has worked elsewhere. The contribution of this study is therefore not to claim completed institutional transformation. Rather, it is to distinguish local learning activities from the organizational arrangements required to retain and circulate their lessons.

The novelty is accordingly bounded: this study applies that distinction to a crisis-affected public university and identifies a consequential empirical mismatch between perceptions of change, accounts of sustained local use, and the absence of demonstrated systematic transfer across branches.

The research question can be answered at three levels. First, the 389 survey respondents reported broadly connected perceptions of introduction, implementation, adoption, and continuation, supporting the use of one overall innovation score. Second, the ten interviews show that some changes arose from employee initiative while others drew on capabilities developed before the crisis. The interviews also describe peer support and the selective continuation of practices. Third, the evidence indicates where wider learning might be developed, particularly through practical documentation and opportunities for staff to share experience.

The study does not demonstrate systematic transfer between branches or institution-wide institutionalization. This distinction is central to interpreting organizational innovation during prolonged disruption.

5.4 Managerial implications for public universities

For a dispersed public university, a practical first step would be to identify adjustments that employees found useful and record the problem, the response attempted, the expertise required, and the result observed. A concise record would help distinguish practices that have already been used from ideas that have not yet been tested. It could also prevent short-term emergency procedures from being preserved automatically without considering whether they remain relevant.

Documentation should remain connected to people who can explain how a practice worked. P2's description of colleague-to-colleague training illustrates the value of practical support. The suggestions made by P9 and P10 indicate an interest in recording technical solutions and lessons from earlier crises.

Together, these accounts support a modest management recommendation: pair concise records with named institutional contact roles or opportunities for peer exchange, while observing appropriate privacy safeguards.

Any wider adoption should allow room for local adaptation. Different branches may have different staffing levels, technologies, and responsibilities. An arrangement that worked in one unit may therefore require modification elsewhere. Managers could review each practice and decide whether it should be retained, adapted, shared, or discontinued.

This is a proposed management approach, not an intervention whose effectiveness was tested in the present study.

These suggestions apply most directly to geographically dispersed public universities operating under repeated disruption and resource constraints. They should not be treated as universal prescriptions. Nor does the study claim that implementing them will necessarily produce cross-unit transfer. Their value lies in identifying concrete decisions that managers can examine in future research and practice.

6. Limitations and Future Research

The findings come from a single public university and a non-probability sample of employees. They should not be interpreted as population estimates for other Lebanese universities, private institutions, or university systems with different resources and governance arrangements.

The cross-sectional design captures reported experience at one point in time. It cannot show how a particular initiative develops, spreads, changes, or disappears over several years.

The interviews provide detail about practices participants used and changes they wanted to see, but they cannot establish how prevalent those experiences were across the institution. Future research could follow selected digital, administrative, and coordination initiatives through repeated interviews, records of actual use, and observations in receiving units.

Such a design could distinguish continued local use from adaptation, cross-unit adoption, and discontinuation. It could also clarify whether a practice was transferred because it was formally mandated, because employees learned from colleagues, or because units independently developed similar responses.

Comparisons with other public universities facing recurrent disruption would further help assess whether peer support, governance arrangements, and organizational-memory practices operate in similar ways under different resource conditions.

7. Conclusion

Organizational innovation at this public university involved more than the emergency adoption of digital tools. Among the 389 staff respondents, perceptions of the introduction, implementation, adoption, and continuation of practices formed one coherent measure of perceived innovation.

The ten interviews showed the practical routes behind those perceptions. Employees introduced local adjustments, made greater use of systems that had existed before the crisis, learned from colleagues, and continued using selected practices after the most immediate disruption had passed.

These examples bring academic, administrative, and technical work together in the analysis of organizational innovation during crisis. They also show why local use should not be confused with institution-wide learning. The study provides evidence of local initiative, peer-supported practice, and selective continuation. It also identifies practical opportunities for better documentation and knowledge sharing, while stopping short of claiming that systematic transfer or university-wide institutionalization has already occurred.

The supported conclusion is narrower than organizational institutionalization: the study identifies distinct routes by which practices become useful and a documented gap between local experience and the organizational arrangements that participants proposed for spreading that experience. Testing whether such arrangements improve transfer requires further research.

Declaration of Generative AI Use

OpenAI's ChatGPT was used to assist with English translation, language editing, grammatical corrections, and improvements to the clarity and readability of the manuscript. The authors retain full responsibility for the research, data, analyses, interpretations, and final manuscript.

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