

Management Mechanisms for Developing Communicative Creativity in Higher Education Leaders: A Quasi-Experimental Study in Uzbekistan

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Abstract: This article reports the results of a quasi-experimental study designed to provide empirical evidence for the effectiveness of management mechanisms aimed at developing the communicative creativity of higher education institution (HEI) leaders in Uzbekistan. The study was conducted with 90 administrative staff across three major universities — Fergana State University, Urganch State University, and Gulistan State University — who were assigned in balanced fashion to an experimental group ($n=45$) and a control group ($n=45$). Grounded in the integration of Amabile's componential theory of creativity and the Bass–Avolio transformational leadership model, a twelve-week, four-module developmental programme was delivered to the experimental group. Analysis of covariance (ANCOVA), controlling for pre-test scores, confirmed that the intervention produced statistically significant and practically very large effects across every principal measure (all $p<.001$; for the overall communicative creativity index, $\eta^2=0.422$, $d=1.99$). Transformational leadership behaviours increased substantially while passive-avoidant (laissez-faire) leadership declined significantly, and the perceived organisational creative climate improved markedly. The control group showed no meaningful change on any measure. The findings demonstrate that the communicative creativity of HEI leaders can be developed effectively through a targeted, theoretically grounded, and systematically organised intervention.

Keywords: Communicative creativity, higher education management, transformational leadership, quasi-experiment, ANCOVA, effect size, divergent thinking, innovative work behaviour, organisational creative climate.

Introduction: The question of how to improve managerial effectiveness has become one of the central concerns of contemporary research on higher education. Globalisation, the rapid advance of information technology, and rising demands on educational services increasingly require higher education institution (HEI) leaders to master new competencies. Among these, communicative creativity occupies a distinct place, because it is decisive in achieving organisational goals, establishing effective communication with team members, and cultivating an innovative working environment.

In Uzbekistan, the ongoing reform of the higher education system is placing new expectations on university management and intensifying the need to develop the communicative competence and creative approaches of administrative staff. Although communicative creativity and its role in management have been studied extensively in the international

literature, the question remains insufficiently examined in the context of the Uzbek higher education system — and, in particular, the empirically grounded mechanisms for developing it are largely absent. Most existing studies rely on correlational or cross-sectional designs, and intervention-based approaches are rare. This gap is consequential: without experimental evidence, claims that communicative creativity can be cultivated in leaders remain theoretical rather than demonstrated.

For the purposes of this study, communicative creativity is understood as a leader's capacity to generate novel, relevant, and effective ideas and solutions across varied communicative situations, and to convey them in a manner adapted to the target audience. Such a capacity is treated not as an innate trait but as a competence that can be developed and managed through purpose-built programmes. The aim of the study is therefore to provide empirical, quasi-

experimental evidence for the effectiveness of an intervention programme designed to develop the communicative creativity of HEI leaders. Two research questions guide the investigation: first, whether a structured developmental programme produces measurable gains in communicative creativity and its components relative to a control group; and second, whether such an intervention also influences related managerial outcomes, including transformational leadership behaviour, innovative work behaviour, and the perceived organisational creative climate.

THEORETICAL FRAMEWORK

The theoretical foundation of the study rests on two complementary bodies of theory. According to Amabile's componential theory of creativity, creative performance arises from the interaction of three interrelated components: domain-relevant skills and knowledge, creativity-relevant (process) skills, and intrinsic task motivation. This theory treats creativity as an integrated system of individual and organisational factors, which makes it well suited to studying creativity within a context as complex as that of higher education institutions. A distinctive feature of the theory is its interpretation of creativity as a competence that can be developed and managed rather than as a fixed, innate quality — an interpretation that aligns directly with the study's aim of designing mechanisms to manage the communicative creativity of leaders.

The transformational leadership model proposed by Bass and Avolio constitutes the study's second theoretical pillar. The model comprises four principal components — idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. Within the broader Full Range Leadership Theory, effective leaders display transformational behaviours to a high degree, transactional behaviours to a moderate degree, and passive-avoidant (*laissez-faire*) behaviours to the least degree. The intervention was accordingly designed both to strengthen transformational behaviours and to reduce *laissez-faire* tendencies. The integration of these two theories provides a coherent conceptual basis for developing leaders' communicative creativity: Amabile's model explains the internal architecture of creative capacity, while the Bass–Avolio model specifies the leadership behaviours through which that capacity is enacted in an organisational setting.

The pedagogical design of the intervention drew on several established frameworks. Guilford's theory of divergent thinking informed the exercises used to cultivate fluency, flexibility, originality, and elaboration; Kolb's experiential learning cycle

structured the movement from concrete experience through reflection to active experimentation; and Kirkpatrick's model of training evaluation shaped the way each weekly session was specified with clear objectives, expected outcomes, and assessment criteria. Together these frameworks translated the abstract theoretical commitments into a concrete, teachable sequence.

METHODOLOGY

Design. The study employed a quasi-experimental pre-test–post-test control-group design. This design supports the internal validity of the findings and allows the effectiveness of the intervention to be assessed reliably. Because participants were not randomly assigned to conditions, initial differences between groups were controlled statistically through analysis of covariance, with pre-test scores entered as covariates.

Participants. The experimental work was conducted during the 2022–2023 academic year at three major Uzbek higher education institutions: Fergana State University, Urganch State University, and Guliston State University. In total, 90 administrative staff took part, comprising department heads, deans and their deputies, and division chiefs. Participants were assigned in equal numbers to the experimental group ($n=45$) and the control group ($n=45$), with careful attention to balance across position, age, sex, and length of service. Baseline diagnostics confirmed that the two groups were statistically equivalent on all principal demographic and psychological indicators (all $p>.50$), which provides a firm basis for attributing any subsequently observed between-group differences to the intervention rather than to pre-existing differences.

Equivalence of groups at baseline. To establish equivalence rigorously, a multivariate analysis of variance (MANOVA) was conducted across all principal dependent variables simultaneously — communicative creativity, transformational leadership, creative thinking, innovative behaviour, and communicative competence. The analysis revealed no statistically significant difference between the groups (Wilks' $\Lambda = 0.96$, $F(5, 84) = 0.71$, $p = 0.618$). Levene's test further confirmed homogeneity of variance across all key variables (all $p>.05$), satisfying the assumptions required for the subsequent parametric ANCOVA analyses.

Instruments. Communicative creativity was assessed using a 42-item questionnaire adapted from Vishnyakova's methodology (Cronbach's $\alpha = 0.89$). Transformational leadership was measured with an adapted 36-item version of the Bass–Avolio Multifactor Leadership Questionnaire (MLQ), of which 20 items address the four transformational subscales, 8 items

address transactional leadership, and 8 items address laissez-faire leadership, each rated on a Likert scale from 0 (“never”) to 4 (“always”). Creative thinking was assessed with a test battery based on the Torrance Tests of Creative Thinking, scoring fluency, flexibility, originality, and elaboration. Innovative work behaviour was measured with an instrument adapted from De Jong and Den Hartog's scale, and communicative competence with a purpose-built instrument capturing communicative repertoire, situational perception, and behavioural adaptation. All instruments were prepared in both Uzbek and English and validated in a pilot study of 120 respondents examining reliability, content validity, and construct validity.

The intervention programme. The developmental programme was delivered over twelve weeks and consisted of four modules: (1) divergent thinking, (2) innovative behaviour, (3) communicative flexibility, and (4) systematic problem-solving. Each module spanned three weeks. The modules were arranged in a logical sequence in which each successive module built on the skills formed in the preceding one: the divergent-thinking skills established in the first module provided the basis for generating innovative ideas in the second; the innovative-behaviour skills developed in the second were then enacted through effective communication in the third; and the fourth module integrated all prior skills and directed them toward the resolution of complex organisational problems. Sessions were held twice weekly and combined lectures, practical exercises, group discussions, role play, simulations, and case-study analysis, so as to accommodate different learning styles and convert theoretical knowledge into applied skill. Interim assessment at the end of each module allowed participant progress to be monitored and the content

adjusted to emerging needs. The control group continued its standard professional activities during the intervention period and was assessed with the same instruments at the beginning and end of the study.

Data analysis. Data were analysed using SPSS 26. The principal analytic technique was analysis of covariance (ANCOVA), with pre-test scores entered as covariates; paired-samples t-tests characterised within-group change. Effect sizes were reported as partial eta-squared (η^2) and Cohen's d, interpreted according to Cohen's conventional thresholds (small $\eta^2=0.01$, medium=0.06, large ≥ 0.14 ; small $d=0.20$, medium=0.50, large=0.80).

RESULTS

1. Communicative creativity and its components

The ANCOVA analyses confirmed that the intervention produced statistically significant and practically very large effects across all components of communicative creativity (all $p<.001$; all $\eta^2>0.30$; all $d>1.40$). In the experimental group, the overall communicative creativity index rose from 3.21 to 4.08 ($\Delta M=+0.87$, $\eta^2=0.422$, $d=1.99$), whereas the control group showed no meaningful change (all $p>.20$). The largest effects were recorded for creative-process skills ($\eta^2=0.449$) and intrinsic motivation ($\eta^2=0.438$), indicating that the divergent-thinking module and the motivational strategies were particularly effective. That intrinsic motivation increased more strongly than extrinsic motivation provides empirical support for a central postulate of Amabile's theory, namely the primacy of intrinsic motivation in creative performance. Table 1 summarises the results for the principal creativity components.

Table 1. ANCOVA results for communicative creativity components

Measure	F(1,87)	p	Partial η^2	Cohen's d
Communicative creativity (overall)	63.58	<.001	0.422	1.99
Domain-relevant skills	53.29	<.001	0.380	1.64
Creative process (overall)	67.52	<.001	0.449	1.74
Fluency	60.84	<.001	0.412	1.69
Flexibility	55.72	<.001	0.391	1.68
Originality	65.18	<.001	0.428	1.72
Elaboration	49.34	<.001	0.362	1.83
Motivation (overall)	58.12	<.001	0.401	1.73
Intrinsic motivation	67.84	<.001	0.438	1.86
Extrinsic motivation	40.62	<.001	0.318	1.42

Note. All effects are classified as “very large” by Cohen's (1988) criteria. The lowest effect, for extrinsic motivation, still exceeds the large-effect threshold, consistent with the theoretical expectation that extrinsic motivation depends more on systemic organisational factors and is harder to shift through a short-term intervention.

2. Transformational leadership (MLQ)

The intervention exerted a very strong effect on transformational leadership. The overall transformational leadership index in the experimental group rose from $M=2.87$ to $M=3.71$ ($\Delta M=+0.84$, $t(44)=10.42$, $p<.001$, $d=1.66$), and ANCOVA confirmed this effect, $F(1,87)=59.92$, $p<.001$, partial $\eta^2=0.408$ — meaning that, after controlling for pre-test scores, some 40.8% of the variance in post-test scores is attributable to the intervention. All four subscales showed statistically significant gains. Individualised consideration recorded the largest increase ($\Delta M=+0.87$, $d=1.81$, $\eta^2=0.418$), a result that underscores the effectiveness of the programme's communicative component, since individualised attention depends directly on the quality of interpersonal communication. Inspirational motivation ($\eta^2=0.392$) and intellectual stimulation ($\eta^2=0.381$) likewise showed large effects, while idealised influence, though still very large in effect, increased somewhat less ($\eta^2=0.374$) — a pattern consistent with the fact that idealised influence rests on relatively

stable personal attributes such as charisma and long-standing reputation, which shift more slowly than the other components.

Two further results deserve emphasis. Transactional leadership also increased significantly ($\eta^2=0.284$, $d=1.01$), indicating that leaders developed not only the capacity to inspire and stimulate creative thinking but also skills in setting clear goals and monitoring outcomes. More strikingly, laissez-faire leadership declined significantly ($\eta^2=0.298$, $d=0.85$), showing that leaders moved away from passive, responsibility-avoiding behaviour toward a more active and accountable managerial stance. Taken together, these three directions of change — stronger transformational behaviour, moderate transactional behaviour, and reduced laissez-faire behaviour — correspond closely to the optimal leadership profile described by Bass and Avolio. In the control group, none of the MLQ indicators changed significantly (all $p>.40$, all $d<0.12$), confirming that leadership styles remain stable in the absence of a targeted intervention. Table 2 presents the full MLQ results.

Table 2. ANCOVA effect-size summary for MLQ leadership indicators

MLQ indicator	F(1,87)	p	Partial η^2	Cohen's d	ΔM (EG)
Transformational (overall)	59.92	<.001	0.408	1.66	+0.84
Idealised influence	51.84	<.001	0.374	1.53	+0.82
Inspirational motivation	55.92	<.001	0.392	1.54	+0.84
Intellectual stimulation	53.48	<.001	0.381	1.60	+0.83
Individualised consideration	62.58	<.001	0.418	1.81	+0.87
Transactional leadership	34.18	<.001	0.284	1.01	+0.46
Laissez-faire leadership	36.94	<.001	0.298	0.85	-0.47

Note. EG = experimental group ($n=45$). Effect magnitudes classified per Cohen (1988). The negative ΔM for laissez-faire leadership reflects the intended reduction of passive-avoidant behaviour.

3. Communicative competence and innovative work behaviour

Innovative work behaviour was assessed using an instrument adapted from De Jong and Den Hartog, which describes such behaviour through four components: idea generation, idea promotion, idea implementation, and problem identification. The results reveal a strong intervention effect throughout. The overall communicative competence index in the experimental group rose from $M=3.14$ to $M=3.98$ ($\Delta M=+0.84$, $t(44)=10.92$, $p<.001$, $d=1.89$), with ANCOVA yielding $F(1,87)=56.48$, $p<.001$, partial $\eta^2=0.394$.

The subcomponent analysis is especially informative. Problem identification recorded the largest effect ($\eta^2=0.406$, $d=2.03$) — a notable result, because problem identification is the initial stage of the innovation process: unless a problem is perceived, no

solution can be proposed. A Cohen's d of 2.03 represents an exceptionally large effect and indicates that the programme was particularly powerful in developing leaders' analytical and diagnostic skills. Idea promotion showed a comparatively lower, though still very large, effect ($\eta^2=0.352$, $d=1.71$); this is plausibly because idea promotion depends on interpersonal influence, a skill that requires more sustained practice than the other subcomponents. Idea generation ($\eta^2=0.378$) and idea implementation ($\eta^2=0.368$) likewise showed large effects, empirically confirming that every component of the De Jong–Den Hartog model can be developed through targeted intervention. In the control group, changes across all subcomponents remained statistically non-significant (all $p>.35$, all $d<0.16$). Table 3 summarises these results together with the organisational climate findings discussed below.

4. Perceived organisational creative climate

One of the study's important aims was to assess whether the intervention affected not only leaders' individual indicators but also the organisational environment within their sphere of influence. Consistent with Amabile's theory, creative outcomes depend not only on individual capability but also on a supportive organisational environment. Participants' perceptions of the creative climate within their own units (department, faculty, or division) were therefore assessed before and after the intervention. The overall creative-climate index improved substantially in the

experimental group ($\eta^2=0.372$, $d=1.75$, $\Delta M=+0.83$). Among its subcomponents, an open-communication climate showed the strongest gain ($\eta^2=0.402$, $\Delta M=+0.84$), followed by leadership support ($\eta^2=0.358$, $\Delta M=+0.90$). These results indicate that developing leaders' communicative creativity has effects that extend beyond the individual to reshape how their teams experience the working environment. Table 3 presents the combined competence, innovative-behaviour, and climate results.

Table 3. ANCOVA summary: communicative competence, innovative behaviour, and creative climate

Measure	F(1,87)	p	η^2	d	ΔM (EG)
Communicative competence (overall)	56.48	<.001	0.394	1.89	+0.84
Idea generation	52.84	<.001	0.378	1.75	+0.84
Idea promotion	47.12	<.001	0.352	1.71	+0.86
Idea implementation	50.68	<.001	0.368	1.76	+0.83
Problem identification	59.38	<.001	0.406	2.03	+0.86
Creative climate (overall)	51.38	<.001	0.372	1.75	+0.83
Leadership support	48.14	<.001	0.358	1.75	+0.90
Resource provision	39.42	<.001	0.312	1.48	+0.76
Autonomy and freedom	46.38	<.001	0.348	1.74	+0.78
Creative encouragement	44.42	<.001	0.338	1.59	+0.80
Open-communication climate	58.12	<.001	0.402	1.98	+0.84

Note. η^2 = partial eta-squared; d = Cohen's d; EG = experimental group. All effects classified as very large per Cohen (1988).

5. Consistency across subgroups

Demographic analyses indicated that the programme was equally effective across all position types, length-of-service groups, and the three universities, with all interaction terms non-significant (all $p>0.17$). This consistency suggests that the intervention's benefits are not confined to a particular subgroup and that the programme is suitable for wider application across differing institutional and demographic contexts.

DISCUSSION

The effect sizes obtained in this study are considerably larger than those typically reported in the international literature on comparable interventions. Several factors help account for this difference. First, in methodological terms, the study employed an intervention design that actively implemented targeted change, and such designs carry greater potential to produce large effects than the correlational or cross-sectional designs on which most comparable studies rely. Second, because programmes aimed at developing communicative creativity had not previously been applied in Uzbek higher education institutions, participants began from a moderate baseline that left substantial room for growth and avoided ceiling effects. Third, the collectivist cultural

setting may have favoured the group-based learning processes at the heart of the programme, encouraging fuller participant engagement.

Beyond the magnitude of the effects, the pattern of results is theoretically coherent. The primacy of intrinsic over extrinsic motivational gains supports Amabile's account of creative motivation; the simultaneous strengthening of transformational behaviour and weakening of laissez-faire behaviour reproduces the optimal leadership profile of Full Range Leadership Theory; and the especially large effect on problem identification is consistent with the logic of the innovation process, in which the perception of a problem necessarily precedes the generation of a solution. That the perceived organisational climate also improved lends weight to the view that leader-level development can have organisation-level consequences, an interpretation directly aligned with the systemic emphasis of Amabile's framework.

Several methodological limitations should be borne in mind when interpreting the results. Because the quasi-experimental design did not involve random assignment, firm causal conclusions are constrained; however, the demonstrated equivalence of the groups at baseline and the statistical control of initial

differences through ANCOVA substantially mitigate this concern. Some measures — particularly the motivation and leadership questionnaires — rely on self-report, which raises the possibility of social-desirability bias; the multi-method approach adopted in the study, combining questionnaires, tests, observation protocols, and expert ratings, provides triangulation that reduces this risk. Finally, because outcomes were assessed at the conclusion of the twelve-week programme, the durability of the gains over longer periods remains to be established.

CONCLUSION

The study provides empirical confirmation that the communicative creativity of HEI leaders can be developed effectively through a targeted, theoretically grounded, and systematically organised intervention. Anchored in the integration of Amabile's componential theory of creativity and the Bass–Avolio transformational leadership model, the twelve-week programme produced very large effects across all principal measures: communicative creativity and its components, the four transformational leadership subscales, innovative work behaviour, and the perceived organisational creative climate, while passive-avoidant leadership declined. The consistency of these effects across positions, service groups, and universities points to the programme's potential for broad application within the Uzbek higher education system.

The practical implication is that communicative creativity should be treated as a manageable competence and incorporated into the professional development of university administrators, rather than being regarded as a fixed personal endowment. For research, the priorities for future work are clear: randomised controlled trials to strengthen causal inference, and longitudinal follow-up to assess whether the substantial gains observed here are sustained over time and translate into measurable improvements in institutional performance. Extending the study to institutions in other regions and to leaders at other levels of the higher education system would further test the generality of the mechanisms identified.

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