THE IMPACT OF INFORMATION FRAMING ON YOUTH ENGAGEMENT IN PUBLIC POLICY DEBATES

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Abstract



Keywords

Youth; information framing; experiment; participation mechanisms; Global Agenda.





- 1. Information delivery may be as important as content, with digital formats potentially increasing youth participation in policy debates by up to 6.8%.
- 2. The effectiveness of information framing is influenced by academic and professional incentives, as well as affinity with the topic.
- 3. Bolivian students recognise the importance of contributing to policy discussions and are interested in learning more, yet social obligations, job commitments, urban migration and institutional distrust limit their active involvement.
- 4. Investing in programmes that develop youth leadership, critical thinking, communication skills, and civic culture can empower youth to participate meaningfully in policy discussions.
- 5. Fostering collaboration between governments, NGOs, and youth organisations can create a supportive environment for youth engagement in policy processes.

Introduction



In Bolivia, universities are key spaces for fostering social awareness and activism among young people. However, little is known about the specific factors that motivate students to actively participate in policy debates. Previous studies have explored general trends in youth political participation (Douglas, 2023; UN-Habitat, 2013) but the lack of contextualised experimental research represents a significant knowledge gap.

Youth participation in policy in the Global South faces numerous barriers, including weak legal frameworks, ineffective political systems, scarce resources, and limited political will, along with individual characteristics such as distrust of institutions and political apathy (UN-Habitat, 2013). Recommendations to overcome these barriers often focus on creating formal spaces for youth, but concerns persist that their participation is "ineffective or tokenistic" (United Nations, 2021, p. 45).

In contrast, empirical studies suggest that youth in the Global North benefit from stronger legal and institutional frameworks that encourage civic participation through channels such as voting, volunteering, and advocacy (Shaw et al., 2014; Pickard & Bessant, 2018; Pitti, 2018). Platforms including youth parliaments and councils in several countries in the Global North have facilitated the direct engagement of young people with decision-makers (Cammaerts et al., 2016).

Despite these structural differences, youth engagement globally still struggles with tokenism, whereby consultations rarely translate into meaningful action (Cammaerts et al., 2016; European Partnership for Democracy, 2023). There is also scant evidence of how sustainable this participation is. Little is also known about more specific aspects such as current levels of active youth participation in discussions around public issues, which groups participate most frequently, what the moments of greatest engagement



are, and the effectiveness of information framing¹ in facilitating participation (Youth Policy Press, 2015; UN Women, 2019; Douglas, 2023).

This article seeks to contribute to the discussion by examining the impact of information framing on Bolivian university students' participation in debates around gender inequality in the labour market. The central research question is: What is the effect of information framing on the participation of young university students in public policy debates? To answer this question, the motivation of young people to participate in gender equality discussions, and the effectiveness of two mechanisms to promote their participation were analysed. The findings may be particularly useful for other cities in the Global South trying to develop meaningful and effective youth participation.

Youth participation in policy in the Global South is hindered by weak legal frameworks, ineffective politics, scarce resources, low political will, and individual distrust and apathy.

To evaluate the effect of information framing, we operationalised the concept of 'meaningful participation' as the percentage of students who submitted a written essay in response to an academic paper competition on gender equality. This definition extends beyond the conventional criterion of 'political participation' which refers to a civil right enabling groups and individuals to engage in governance, leadership, and decision-making processes, either directly or indirectly through representation (Abebe et al., 2022). Although this criterion has limitations including a narrow focus on written expression and limited applicability in non-academic settings, it also offers several advantages. Firstly, it reproduces a fairly 'real' scenario in policy formulation, which is written, discussed and evaluated, providing an authentic example of young people's engagement with public discourse. Second, by requiring students to produce written essays, we gain a deeper understanding of their knowledge base and their ability to articulate complex ideas related to gender equality, thus enabling a nuanced evaluation of their participation. Third, it entails a process of reciprocal information exchange, where participants share their knowledge and perspectives, leading to a more informed and nuanced understanding of the issue at hand (Rowe & Frewer, 2005).

^{1.} In the study, 'framing information' refers to presenting or structuring information in a manner that shapes how the issues discussed are perceived, interpreted, and addressed.

Methods



An experimental design involving three groups of volunteer students was implemented. Stimulus-organism-response (S-O-R) theory was employed to analyse how different information framings may affect their motivation to participate in policy debates. Proposed by Mehrabian and Russell (1974), S-O-R theory posits that individual behaviour is influenced by environmental stimuli, internal cognitive processes, and subsequent responses. In our study, the different information formats (workshops and infographics) serve as environmental stimuli, influencing participants' cognitive processes and ultimately their decision to participate. While this theory is foundational, its relevance endures, as it has been widely applied and expanded upon in contemporary research across various fields, including consumer behaviour (Jacoby, 2002), environmental psychology (Chang et al., 2011), and digital marketing (Purwanto et al., 2022).

First, students from the Public University of El Alto (UPEA) were invited to take part in the experiment. The invitation was sent by a final-year teacher via WhatsApp to colleagues, fifth-year students, graduates, and the student centre. The call yielded 147 participants, all from the Economics programme.² Following the elimination of duplicates³ and errors,⁴ a final sample of 131 participants was obtained. A statistical power analysis was not conducted due to several constraints, including restricted access to the UPEA student population, the voluntary nature of participation, and limited resources in terms of time and budget. The focus, therefore, was on maximising the participation of available students.

Participants were randomly assigned-using Stata 17-to one of three experimental groups: an on-site group, a digital group and a control group. To verify their initial equivalence, comparative analyses of demographic variables such as age and gender were performed. The results indicated no significant differences between the groups, suggesting successful randomisation (Appendix 1).

^{2.} This programme was selected because of its relevance to public policy analysis and formulation. It was considered that the training of these students would allow them to contribute significantly to this dialogue. Furthermore, the agreement between the Aru Foundation and these academic areas facilitated coordination and access to the students.

^{3.} I.e., responses containing the same mobile phone number.

^{4.} I.e., responses where the mobile phone number entered was incorrect or incomplete.



Following allocation, WhatsApp groups were created to facilitate communication with each group. To provide evidence-based gender equality information, the on-site group attended an interactive workshop, while the digital group received two series of infographics (see Appendix 2 for examples of the infographics). The same content was provided to in-person and digital groups. The control group did not receive any intervention.

All participants were invited to complete two questionnaires (one pre- and one post-intervention) and submit an essay two days after the intervention. The questionnaires gathered: 1) personal data; 2) pre-treatment beliefs (practices, attitudes, and perceptions) about gender equality; and 3) posttreatment beliefs about gender equality, including inclinations to engage in discussions on public policies for gender equality. Participants were sent an invitation to take part in an opinion piece competition, and received five reminders over ten days.

The experiment was then replicated with two groups of students from the Universidad Mayor de San Andrés (UMSA), the public university of the city of La Paz: one comprising 44 final-year political science students, and the second composed of 61 first-year computer science students. As in the UPEA experiment, each group completed two questionnaires, one with questions about respondents' personal data and their beliefs before the experiment, and one on their beliefs after the experiment.

The experiment was designed to control for potential differences in outcomes by analysing each degree course separately, thus each degree was considered as an independent unit of analysis. By disaggregating the data, we were able to distinguish more accurately between the influence of information framing and factors related to each academic discipline. Additionally, since the treatment was not the same in the case of UPEA (where three groups were included) and UMSA (where two groups were included), an aggregate analysis of the data was not carried out.

Then, three indicators were calculated based on each sample's data: 1) participation rate, gauged by the proportion of individuals who submitted essays; 2) participants' belief index, calculated from the questionnaires on practices, attitudes, and perceptions; and 3) essay scores.

Finally, semi-structured interviews were conducted with two teachers and with six final-year UPEA students. The interview focused on the essay competition, the decision to participate, and gender equality more broadly (see Appendix 8). Of the students interviewed, two were from the control



group (one male, one female), two from the on-site group (one male, one female), and two from the digital group (both female). Two of them had submitted essays, while the remainder had not. Informed consent from all participants was obtained and confidentiality ensured.

The experiment was implemented following a predefined protocol to minimise researcher bias and ensure consistency across all participant groups. All steps of the research process were meticulously documented, including data collection methods, analysis procedures, and ethical considerations. This detailed documentation allows for replication and evaluation of the article's findings.

Results

Participants profile

Demographic analysis shows differences in age, gender and ethnicity among the participating groups. The mean age of participants enrolled in the Economics and Political Science programmes (23.3 and 23.7 years respectively) is higher compared to those in the Computer Science programme (20.9 years). Gender distribution also varies. Males make up the majority of participants in Political Science (69%) and Computer Science (63%), while females predominate among the Economics programme participants (72%). While most political science and computer science participants identify as 'mestizo' (54% and 37% respectively) –a term used in Bolivia to refer to individuals of mixed indigenous and nonindigenous ancestry—the majority of economics participants identify as indigenous (52%).

Participants' place of residence, employment rates, and family income levels also varied. Most participants resided in La Paz, except for economics students, 95% of whom lived in El Alto. Employment is more common among economics and political science participants (43% and 42%, respectively) than among computer science participants (21%). Finally, family income among economics students is concentrated in the lowest income bracket (66%), in stark contrast to the political science (23%) and computer science participants (38%). Appendix 3 provides a detailed analysis of the statistical significance of these inter-group differences.

Participation

In UPEA groups, comprising economics students, participation was high at the beginning of the experiment (when they had to submit the subsequent form), decreasing when they had to submit the subsequent form, and was very low when they had to submit the essay (see Figure 1). Only the digital and on-site treatment groups submitted an essay. The results of the analysis of variance (ANOVA) indicate a statistically significant effect of digital information on the dependent variable (p < 0.10) in comparison to the control group (6.8%). Nevertheless, no statistically significant difference was identified between the on-site and control groups. The sample size and the ANOVA results are presented in Appendix 5.

These results suggest that providing information digitally may positively impact student participation, while the lack of significant differences between the on-site and control groups raises doubts about the effectiveness of inperson interventions. This may be due to smaller sample sizes or a weaker impact of the on-site approach compared to the digital one.



Figure 1. Graph to show percentage of questionnaire responses and essay submissions among economics students across groups

Note. Authors' calculations based on the UPEA experiment.





Among the UMSA groups, no statistically significant differences were found between the digital and control groups for political science and computer science students in contrast to the findings from the UPEA experiment. In the case of political science participants, 11% in both the digital treatment and control groups submitted essays. Among computer science students, the response rate for the essay contest was similar, at 3.3% for the digital group and 3.2% for the control group (see Figure 2). This lack of significant differences may imply that the digital treatment did not have a marked effect on these student groups, or it may reflect underlying factors, such as variations in motivation or engagement across disciplines.

Figure 2. Graph to show percentage of questionnaire responses and essay submissions among political science and computer science students across groups



Note. Authors' calculations based on the UMSA experiments.

Beliefs before and after treatment

Three dimensions (perceptions, attitudes and practices) were analysed to assess beliefs on gender equality in the control, digital, and workshop groups. Table 1 presents the results of the analysis. For the workshop group, the results were further divided between those who attended the workshop at UPEA and those who did not. This distinction allows us to compare the beliefs of participants who received the full intervention to those who did not



attend. We present 'before' and 'after' treatment measurements. Values closer to five indicate greater affinity to gender equality. The indices summarising young people's beliefs in favour of gender equality vary between 3.8 and 4.0. There are no significant differences between groups.

			Perce	ptions			Attit	udes			Prac	tices	
		Bef	ore	Af	ter	Bef	ore	Af	ter	Bef	ore	Aft	ter
Treatment	Degree	М	SE	М	SE	М	SE	М	SE	М	SE	М	SE
	Political Science	3.76	0.15	4.02	0.13	4.06	0.20	4.20	0.16	3.79	0.22	3.88	0.15
Control	Economics	3.83	0.09	3.78	0.12	4.03	0.10	4.18	0.11	3.87	0.12	3.87	0.12
	Computer Science	3.75	0.14	3.97	0.12	3.90	0.15	4.11	0.14	3.78	0.15	3.81	0.14
	Political Science	3.90	0.11	3.88	0.13	4.28	0.11	4.34	0.11	3.90	0.15	4.02	0.13
Digital	Economics	3.86	0.09	3.88	0.11	3.97	0.12	4.19	0.11	4.06	0.13	3.97	0.12
	Computer Science	3.77	0.10	4.07	0.16	4.03	0.13	4.05	0.19	3.64	0.13	3.90	0.18
Workshop - Attended	Economics	3.84	0.10	3.80	0.18	4.23	0.14	4.28	0.12	3.86	0.25	4.17	0.22
Workshop - Did not attend	Economics	3.76	0.09	3.70	0.14	4.22	0.13	4.11	0.16	3.71	0.13	3.85	0.13

Table 1. Summary of interview findings

Note. Authors' calculations based on the UPEA and UMSA experiments. M=Mean; SE=Standard Error.

The observed differences between the control group and the treatment groups were not statistically significant. This is the case for both the preand post-test groups when all three types of questions are considered (perceptions, practices and attitudes). The value of the F-statistic, which compares the variances between groups to the variances within groups, is not sufficiently high (due to the high p-value), which does not allow us to reject the null hypothesis (no differences between groups). In other words, the results do not provide sufficient evidence to conclude that the treatment groups experienced a meaningful change in their beliefs on gender equality compared to the control group (Appendix 6).

Essay quality

Essays were evaluated based on plagiarism, originality, argumentation, writing (writing and constructing sentences), and use of evidence. Grading was based on these criteria to determine their final essay scores. The mean



score for the essays was 37 out of 60 points, approximately 60% of the maximum possible score. The highest score was obtained by political science students, with an average of 47 points, while the lowest score was recorded by computer science students, with an average of 25 points. Economics students achieved an average score of 31 points, ranking in the middle of the overall distribution. Once we applied the criteria to evaluate each essay, we found interesting variability in the responses. The main contribution of youth participation according to this index is originality (the measure varies between 6 and 10). The main constraint for them is their ability to express their ideas in a formal way, an aspect that is reflected in the low scores for punctuation, grammar, and spelling (the measure ranges from 2.7 to 6.8).



Figure 3. Graph to show mean essay scores by topic and degree

Note. Elaborated by authors.

Discussion and actionable recommendations

This research sought to ascertain the effect of information framing on the participation of young people in policy debates around gender equality. This section provides a comprehensive analysis of the findings, highlighting key patterns and implications, and concludes with actionable recommendations to enhance youth engagement in policy discussions.

Impact of information framing

The experiment revealed that the format in which information is presented can play a role in motivating youth participation in policy debates. Using infographics via digital media led to a 6.8% increase in participation for UPEA participants. This suggests that the way information is structured and delivered may be as important as the content in encouraging engagement. However, the impact was not consistent across different student groups, suggesting that other factors may be more influential. While prior interest in the subject matter, the manner in which the information is delivered, and potential professional or academic incentives may have contributed to the increased participation at UPEA, further research is needed to confirm the impact of these factors, and to identify other potential drivers of youth engagement. Interviews conducted with teachers and students suggest that student participation was limited by a number of factors. These included their character traits (such as apathy or introspection), the reduced degree of interaction within each of the groups, and the labour activities of those who work. In addition, a reduced capacity for written communication among students (reported by one of the teachers) may have further restricted their participation.

The importance of information in promoting youth political participation is well recognised. While the observed increase in participation suggests that accessible and well-presented information can empower youth, it is important to consider the evolving nature of digital technologies and their impact on youth engagement. While Cullen and Sommer (2010) highlight potential limitations of online participation, such as lower satisfaction, it is crucial to acknowledge that the digital landscape has significantly evolved since then.

Additionally, the impact of information framing can vary depending on the context. For younger students with less writing practice, the intervention had limited impact. For older students with more experience, while participation was higher, the specific information framing used did not significantly



affect their engagement. This suggests that the effectiveness of information framing may be influenced by factors such as age, academic background, and prior knowledge.

In addition, participation was found to shift over time. The data suggest highest willingness to participate at the initial stages (probably associated with the incentive of receiving a certificate), with a decline in participation at the time of completing each questionnaire, and overall low motivation at the time of submitting the essay. In the majority of cases, the time and effort required to fulfil each requirement outweighed the willingness to participate. This behaviour underscores the dynamic nature of youth participation, and the need to encourage both active engagement and provide tangible outcomes.

Beliefs and quality of participation

The evidence indicates that providing information alone is not enough to change young people's beliefs, probably due to the complexity of belief formation, which involves not only exposure to information but also personal experiences, social influences, and prior attitudes (Abebe et al., 2022). Experimental methods focused solely on information framing may not capture the full range of factors that influence belief change. The indices calculated with the three students samples indicate a favourable attitude towards gender equality among the younger generation. Nevertheless, no significant differences were observed between the control and treatment groups before and after the intervention.

The article indicates that young people's contribution to policy discussions may centre around the originality of their ideas and their use of evidence. The essays submitted by young people achieved the highest scores for both of these criteria. Criteria associated with writing (e.g., sentence construction, spelling, and grammar) were among the lowest-scoring categories (RISE Programme, 2022).

Implications

The article offers insights into youth participation in policy discussions in contexts that are common across the Global South. Key challenges that hinder meaningful youth engagement include balancing work and study, migration to cities—which shifts young people's focus to employment or adapting to urban life—difficulties in consolidating learning, and widespread distrust of institutions. Notably, while most respondents recognised the importance of participating in, and contributing to policy discussions, they



cited family, academic, work, and social obligations as factors limiting their involvement. These can significantly impact young people's ability to engage in public discourse and participate actively in policy debates.

Economic hardships and resource limitations in low-income communities reduce young people's ability to participate effectively.

In addition, individual characteristics—such as knowledge, skills, attitudes, and motivations—as well as broader social and cultural factors influence young people's willingness and capacity to engage in public discourse. For instance, research has shown that social and cultural norms in hierarchical or patriarchal societies marginalise young people and women from decision-making spaces (Umar et al., 2021). Additionally, economic hardships and resource limitations in low-income communities reduce young people's ability to participate effectively (Manzanero, 2021).

Our findings suggest that older age groups participate more frequently and to a higher standard in policy discussions. This can be seen in the percentage of participation observed in the older political science student group (over 11% in both the treatment and the control group), compared to the other younger groups, which had participation rates of 6.8% (economics) and 3% (computer science). As a preliminary hypothesis, it may be argued that this difference could be attributed to their broader understanding of social and political phenomena, as well as greater economic autonomy, which affords them more time and resources to engage in public debates.

On the other hand, it is crucial to acknowledge significant variability in opportunities and platforms available to participate across regions and contexts. For example, regulatory barriers, such as age limits for voting or running for office, often exclude young people from formal political processes (Ozugha & Faruk, 2020; Bowman, 2014). However, the fact that some young people are reluctant to participate does not necessarily indicate that they lack the opportunity to do so (Women Deliver, 2019); rather, they may lack motivation with regard to the issue in question (e.g. gender equality), or do not see themselves having a role in policy discussions (Adu-Gyamfi, 2013; Haid et al., 1999). During the interviews, some participants failed to recall the issues discussed in each group, the questions in the questionnaires, and the data provided during the experiment.



Limitations

The findings presented here are relevant to predominantly urban contexts with populations who have widespread access to basic services (including the internet), who have access to university education, and who have some interest in social research. Degree choice, which defines both students' field of interest and the manner in which they approach problems, also influences the impact of information on participation. It is possible that using the topic of gender equality as a motivator for participation may have influenced the results (UN-Women, 2019; Bayer & Ke, 2013), with a different topic possibly yielding a different set of results (Adu-Gyamfi, 2013).

The utilisation of an experimental methodology reduces measurement biases and allows the formulation of an intuitive measurement. However, two significant challenges emerged during the implementation phase. The first challenge was the exclusion of young people in the control group from the treatment. Some of the students interviewed indicated that they were displeased at being unable to attend the face-to-face workshop at UPEA. The second challenge was the limited timeframe for the research. This restricted the quantity of information provided to each treatment group, thereby limiting the scope for more extensive interaction and feedback. According to the teachers, this would have had a greater effect.

The discrepancy in outcomes observed at UPEA and the lack of impact at UMSA could not be fully explained. It could be attributed, at least in part, to the distinctive attributes of each UMSA cohort including age and proclivity to engage in political discourse. The computer science group was notably younger and less eager to participate, while the political science group was the oldest and it is likely that the students were more interested in the policy debate.

Another potential explanation of the effect observed among the UPEA students is that this university has a partnership with the ARU Foundation, which may have generated interest among students to participate in the initiatives developed under this framework.

Aggregate analysis of all the samples could have given the findings greater generalisability, but was beyond the scope of the research design as originally planned. We preferred to prioritise the local context and the specific characteristics of each group of students to understand the effect of information framing on participation.



Despite these limitations, the article highlights potential strategies to support youth participation and foster more inclusive and equitable societies in other regions of the Global South, by understanding some of the specific challenges faced by youth in Bolivia.

Conclusions and recommendations

The article shows that information affects the meaningful participation of young people in specific contexts. At the same time, it suggests that:

- 1. Young people's beliefs are not changed by more information.
- 2. Young people have original approaches to policy discussion, but their input is not manifested through conventional means such as written essays.

A cross-cutting issue concerns young people's rationality in deciding when and how much to participate. The data suggest that there is an opportunity cost associated with each stage of participation that is not necessarily offset by real opportunities to contribute to better policy discussion.

Probably for the same reason, young people value the ways in which they receive information. The greater effect of digital information delivery in accessible formats compared to face-to-face encounters providing the same information supports this view. Based on these findings, recommendations can be made to foster meaningful youth engagement in policy debates.

First, to better understand how to improve the quality of youth participation, it is necessary to understand the behaviour of young people in different contexts. More far-reaching studies, for example at the level of the municipality of El Alto (where UPEA is located) or the municipality of La Paz (where UMSA is located) could complement the demand factors found here with others of a more general scope. Expanding research in this area will enable a thorough analysis of how local governance structures, community resources, and socio-economic conditions influence youth engagement. Identifying variations across different contexts will help policymakers tailor strategies to meet the specific needs and motivations of youth. Specifically, using surveys to gather insights on young people's interests, conditions for participating in public policy debates, preferred interaction methods, and views on conventional inclusion strategies will provide valuable evidence for enhancing youth participation.

Second, the findings highlight the need to expand and improve modes of youth participation, starting with critical analysis of information



dissemination methodologies. Employing didactic techniques, social networks, and audio-visual media should be fundamental to these strategies. Additionally, implementing a robust follow-up strategy is essential for sustaining the interest of young people and guiding it constructively toward public policy discussions. Forming 'horizontal' discussion groups, strengthening social connections among youth, and generating academic, professional, or vocational incentives are key components of this strategy. By directly addressing these specific policy areas, we can foster a more inclusive and effective framework for youth participation in decisionmaking processes.

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Table A1. Contingency table: Balance of variables of experiment

UPEA-Economics							
		Group					
Sex	1	2	3				
Male	14	13	12	39			
Female	30	31	31	92			
Total	44	44	43	131			
Mean age	23.36	23.52	23.3	23.4			
Std. Dev. (Mean age)	0.4701	0.3784	0.4641	0.2517			
	UMSA- Po	litical Science					
Group							
Sex	1	2	Total				
Male	11	12	23				
Female	7	6	13				
Total	18	18	36				
Mean age	23.94	23.61	23.77				
Std. Dev. (Mean age)	0.7899	0.6474	1.017				
	UMSA- Cor	mputer Science					
		Group					
Sex	1	2	Total				
Male	22	20	42				
Female	9	10	19				
Total	31	30	61				
Mean age	20.97	21.37	21.16				
Std. Dev. (Mean age)	0.3636	0.3997	0.268756				

Note. Author's calculations.



Figure A1. Examples of infographic series on gender inequality in the labour market



Table A2. Youth profile. Students who completed surveys before and after treatment

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	Political Science	Computer Science	Economics		Statistica	Il Tests	
Sample size (subsample)	26	38	86	р	ECO/PS	CS/PS	CS/ ECO
Mean Age	23.7	20.9	23.3	0.000*	1.0000	0.000*	0.000*
		Sex					
Male	69.2%	63.2%	27.9%	0.000*	0.000*	1.0000	0.000*
Female	30.8%	36.8%	72.1%	0.000*	0.000*	1.0000	0.000*
	Yec	Ir of study at	university				
lst year	0.0%	18.4%	0.00%	0.000*	1.0000	0.001*	0.000*
2nd year	7.7%	50.0%	5.81%	0.000*	1.0000	0.000*	0.000*
3rd year	26.9%	31.58%	18.60%	0.2623	1.0000	1.0000	0.3530
4th year	34.6%	0.0%	10.47%	0.0001*	0.002*	0.000*	0.2500
5th year	30.8%	0.0%	41.86%	0.000*	0.7340	0.0150	0.000*
Graduate	0.0%	0.0%	23.26%	0.0001*	0.005*	1.0000	0.001*
	Mu	nicipality of r	esidence				
Batallas	0.0%	0.0%	1.16%	0.6921	1.0000	1.0000	1.0000
El Alto	11.5%	23.7%	95.4%	0.000*	0.000*	0.3460	0.000*
La Paz	80.8%	73.7%	2.33%	0.000*	0.000*	1.0000	0.000*
Viacha	7.7%	2.6%	1.2%	0.1969	0.2160	0.6560	1.0000
What	is the langu	age you learı	ned to speak a	ıs a child?			
1. Spanish	96.2%	100.0%	91.9%	0.1680	1.0000	1.0000	0.1930
3. Aymara	3.9%	0.0%	8.1%	0.1680	1.0000	1.0000	0.1930
W	hich of these	e categories d	do you identify	with?			
1. Indigenous	11.5%	15.8%	52.3%	0.000*	0.000*	1.0000	0.000*
2. Mestizo	53.9%	36.8%	20.9%	0.0035*	0.004*	0.4150	0.2110
3. White	0.0%	0.0%	1.2%	0.6921	1.0000	1.0000	1.0000
4. Afro-Bolivian	3.9%	0.0%	0.0%	0.0915	0.1060	0.1910	1.0000
5. Other	3.9%	7.9%	5.8%	0.7975	1.0000	1.0000	1.0000
6. None	26.9%	39.5%	19.8%	0.0699	1.0000	0.7770	0.0640
	W	/here were yo	ou born?				
1. In El Alto	11.5%	10.5%	56.98%	0.000*	0.000*	1.0000	0.000*
2. In Nuestra Señora de La Paz	84.6%	84.2%	0.00%	0.000*	0.000*	1.0000	0.000*



3. In another municipality of the department of La Paz	0.0%	0.0%	37.21%	0.000*	0.000*	1.0000	0.000*		
4. In another department	3.9%	5.3%	4.65%	0.9664	1.0000	1.0000	1.0000		
5. In another country	0.0%	0.0%	1.16%	0.6921	1.0000	1.0000	1.0000		
	Where	did you live 5	i years ago?						
1. In El Alto	19.2%	34.2%	86.1%	0.000*	0.000*	0.4150	0.000*		
2. In Nuestra Señora de La Paz	69.2%	63.2%	0.0%	0.000*	0.000*	1.0000	0.000*		
3. In another municipality of the department of La Paz	0.0%	0.0%	12.79%	0.0115*	0.0800	1.0000	0.033*		
4. In another department	11.5%	0.0%	1.16%	0.0074*	0.011*	0.014*	1.0000		
5. In another country	0.0%	2.6%	0.0%	0.2303	1.0000	0.6180	0.2970		
What is the current marital or civil status?									
1. Loner	92.3%	97.4%	95.4%	0.6461	1.0000	1.0000	1.0000		
2. Married	0.0%	0.0%	2.3%	0.4757	1.0000	1.0000	0.9060		
3. Cohabitant or Concubine	7.7%	0.0%	2.3%	0.1669	0.4140	0.1860	1.0000		
4. Separated / Divorced	0.0%	2.6%	0.0%	0.2303	1.0000	0.6180	0.2970		
I	ast week d	lid you work fo	or any paym	ent?					
1. Yes, I worked for pay	42.3%	21.1%	43.0%	0.0560	1.0000	0.2500	0.0600		
2. Yes, I worked but I did not receive any payment	7.7%	7.9%	8.1%	0.9970	1.0000	1.0000	1.0000		
3. I did not work but I was looking for a job.	23.1%	13.2%	22.1%	0.4775	1.0000	1.0000	0.7670		
4. I did not work	26.9%	57.9%	26.7%	0.0020*	1.0000	0.028*	0.002*		
In the previous month, in what range	e was the d	isposable lab	our income c	of your entire	household	ł (in bolivia	nos)?		
1. 0 - 1499	23.1%	36.8%	66.3%	0.000*	0.000*	0.7600	0.005*		
2.1500-2799	11.5%	29.0%	24.4%	0.2569	0.5280	0.3250	1.0000		
3 2800-4199	34.6%	13.2%	7.0%	0.0011*	0.001*	0.033*	1,0000		

3.2800-4199	34.6%	13.2%	7.0%	0.0011*	0.001*	0.033*	1.0000
4. 4200-5999	23.1%	10.5%	1.2%	0.0005*	0.000*	0.1510	0.1690
5. 6000-11999	7.7%	7.9%	1.2%	0.1223	0.4110	1.0000	0.2360
6. 12000 o más	0.0%	2.6%	0.0%	0.2303	1.0000	0.6180	0.2970

Note. Author's calculations.

The p-values reported in the table correspond to: Prob > F: p-value from ANOVA, indicating the probability of obtaining a difference between groups as large or larger if the null hypothesis (no difference between groups) were true. ECO/PS, CS/PS, CS/ECO: p-values of the pairwise comparisons of the Bonferris test, indicating the probability of obtaining such a large or larger difference between the specified pairs of groups if the null hypothesis (no difference between the two groups) were true.



	Politica	Political Science Computer Science		er Science	ence Econor	
	Male	Female	Male	Female	Male	Female
Sample size (subsample)	29	15	42	19	39	92
Average age	26.72	26.13	21.50	20.42	24.44	22.96
		Treatment				
Control	11	7	22	9	12	31
Digital	12	6	20	10	14	30
Workshop Attended					2	10
Workshop - Did not attend					11	21
	Participation					
Participated	3	1	1	1	1	4
Did not participate	26	14	41	18	38	88

Table A3. Treatment and participation

Note. Authors' calculations

Table A4. Statistical tests of differences in response proportions between treatments for each study field

		E	conomics	;			
	Source	SS	df	MS	F	р	
	Between groups	0.04	1	0.04	0.22	0.6398	
	Within groups	14.24	85	0.17			
	Total	14.28	14.28 86				
		Poli	tical Scien	ice			
	Source	SS	df	MS	F	р	
Initial form responses	Between groups	0	1	0	-	-	
	Within groups	0	34	0			
	Total	0	35	0			
	Computer science						
	Source	SS	df	MS	F	р	
	Between groups	0	1	0	-	_	
	Within groups	0	59	0			
	Total	0	60	0			



		E	conomic	s					
	Source	SS	df	MS	F	р			
	Between groups	0.03	1	0.03	0.14	0.7128			
	Within groups	19.62	85	0.23					
	Total	19.66	86	0.23					
		Polit	ical Scie	ence					
	Source	SS	df	MS	F	р			
Subsequent form responses	Between groups	0.11	1	0.11	0.53	0.4711			
	Within groups	7.11	34	0.21					
	Total	7.22	35	0.21					
		Com	outer sc	ience					
	Source	SS	df	MS	F	р			
	Between groups	0.47	1	0.47	2.02	0.1606			
	Within groups	13.85	59	0.23					
	Total	14.33	60	0.238797814					
	Economics								
	Source	88	df	MS	F	n			
						P			
	Between groups	0.10	1	0.10	3.07	0.0832			
	Between groups Within groups	0.10	1 85	0.10	3.07	0.0832			
	Between groups Within groups Total	0.10 2.79 2.90	1 85 86	0.10 0.03 0.03	3.07	0.0832			
	Between groups Within groups Total	0.10 2.79 2.90 Polit	1 85 86 iical Scie	0.10 0.03 0.03	3.07	0.0832			
	Between groups Within groups Total Source	0.10 2.79 2.90 Polit	1 85 86 iical Scie	0.10 0.03 0.03 ence MS	3.07 F	р 0.0832 р			
Competition Responses	Between groups Within groups Total Source Between groups	0.10 2.79 2.90 Polit SS 0	1 85 86 cical Scie df	0.10 0.03 0.03 ence MS 0	3.07 <i>F</i> 0	р 0.0832 р 1			
Competition Responses	Between groups Within groups Total Source Between groups Within groups	0.10 2.79 2.90 Polit SS 0 3.56	1 85 86 cical Scie 1 34	0.10 0.03 0.03 ence MS 0 0.10	3.07 <i>F</i> 0	р 0.0832 р 1			
Competition Responses	Between groups Within groups Total Source Between groups Within groups Total	0.10 2.79 2.90 Polit SS 0 3.56 3.56	1 85 86 ical Scie df 1 34 35	0.10 0.03 0.03 ence MS 0 0.10 0.10	3.07 <i>F</i> 0	р 0.0832 р 1			
Competition Responses	Between groups Within groups Total Source Between groups Within groups Total	0.10 2.79 2.90 Polit SS 0 3.56 3.56 3.56	1 85 86 ical Scie df 1 34 35 outer sc	0.10 0.03 0.03 ence MS 0 0.10 0.10 0.10	3.07 <i>F</i> 0	р 0.0832 р 1			
Competition Responses	Between groups Within groups Total Source Between groups Within groups Total Source	0.10 2.79 2.90 Polit SS 0 3.56 3.56 3.56 3.56	1 85 86 ical Scie df 1 34 35 outer sc df	0.10 0.03 0.03 ence MS 0 0.10 0.10 0.10 ience MS	3.07 <i>F</i> 0 <i>F</i>	р 0.0832 р 1 1			
Competition Responses	Between groups Within groups Total Source Between groups Within groups Total Source Between groups	0.10 2.79 2.90 Polit SS 0 3.56 3.56 3.56 3.56 Com	1 85 86 ical Scie df 1 34 35 outer sc df 1	0.10 0.03 0.03 ence MS 0 0.10 0.10 0.10 0.10 ience MS 0.00	3.07 <i>F</i> 0 <i>F</i> 0	р 0.0832 р 1 1 Р 0.9816			
Competition Responses	Between groups Within groups Total Source Between groups Within groups Total Source Between groups Within groups	0.10 2.79 2.90 Polit SS 0 3.56 3.56 3.56 Comp SS 0.00 1.93	1 85 86 iccal Scie df 1 34 35 outer sc df 1 59	0.10 0.03 0.03 ence MS 0 0.10 0.10 0.10 0.10 0.10 0.00 0.00 0	3.07 <i>F</i> 0 <i>F</i> 0	р 0.0832 р 1 1 0.9816			

Note. Authors' calculations

ANOVA analysis

Analysis of variance decomposes the total variability in a data set into components attributable to different sources of variation. This is done by assessing within-group variability and between-group variability. In the case of a repeated measure ANOVA, one can assess whether observed changes in beliefs are statistically significant over time or in response to treatment. To calculate the F-statistic we use:

$$\begin{split} SSA &= \sum_{i=1}^{k} \left[\Box n_{i} \left(\underline{X}_{i} - \underline{X} \right)^{2} \right] SSA = \sum_{i=1}^{k} \left[\Box n_{i} \left(\underline{X}_{i} - \underline{X} \right)^{2} \mathbf{y} \right] SSE = \sum_{i=1}^{k} \left[\Box \sum_{j=1}^{n} \Box \left(X_{ij} - \underline{X}_{i} \right)^{2} \right] \\ SSE &= \sum_{i=1}^{k} \left[\Box \sum_{j=1}^{n} \Box \left(X_{ij} - \underline{X}_{i} \right)^{2} \right] \\ F &= \frac{\frac{\sum_{i=1}^{k} \Box n_{i} \left(\underline{X}_{i} - \underline{X} \right)^{2}}{k-1}}{\frac{\sum_{i=1}^{k} \Box \sum_{j=1}^{n} \Box \left(X_{ij} - \underline{X}_{i} \right)^{2}}{N-k}} \end{split}$$

Where:

- k is the number of groups.
- is the size of group i.
- is the observation j.
- N is the total number of observations.
- Sum of squares between the groups (SSA).
- Sum of squares within groups (SSE).

The p-values of the analysis of variance are presented below to test whether there are statistically significant differences between the different groups in terms of their beliefs. Differences between the control group, the digital treatment group, the group that attended the face-to-face workshop and the group that did not attend the face-to-face workshop were analysed. The ANOVA has a null hypothesis stating that there are no statistically significant differences between groups.



Table A5. ANOVA analysis: Perceptions, Practices & Attitudes p-values

	Perceptions	Practices	Attitudes
Before	0.908	0.816	0.379
After	0.473	0.404	0.910

*H0: No difference between groups

Note. Authors' calculations

In all cases, we conclude that there are no statistically significant differences between groups because the p-value of the F-statistic is high. Therefore, the null hypothesis that there are no differences between groups cannot be rejected.

Appendix 6

Sentences and questions used to calculate Belief index

N°	Perceptions
1	I believe in equality between men and women.
2	Women and men have the same opportunities in Bolivia.
3	Gender differences are immutable, and women and men have different (but complementary) social roles.
4	The wage gap is a myth; women already receive equal pay for equal work.
5	Men and women have the same intellectual capacities.
6	Women are as good as men at jobs that require leadership and decision making.
7	Women are as rational and logical as men.
8	Domestic violence is a serious problem that affects both genders equally.
9	The state should impose quotas requiring that fathers and mothers receive a similar amount of maternity/ paternity leave.
10	Women are just as capable as men of leading a team.
11	I would feel comfortable with a woman as a boss.
12	I would not mind if my partner earned more money than me.
13	I agree with the equal participation of men and women in household chores.
14	Men who do not work to support their families are failures.
15	I would be upset if my daughter married a man who earns less money than her.
16	Men should have the same responsibility for raising children as women.
17	In my house, household chores are shared equally between men and women.
18	I have corrected someone who has made a gender discriminatory comment.



- 19 I have read a book or article about gender equality.
- 20 I have seen a film or documentary about gender equality.
- 21 Girls have the same educational opportunities as boys.
- 22 Girls have the same learning opportunities as boys in your community.
- 23 Men and women have an equal say in household decisions.

development, economic inequality, etc. if invited?

N°	Questions
1	Have you participated in any activities or initiatives to promote gender equality?
2	Have you talked to anyone about the importance of gender equality?
3	Do you think that your participation in a public policy debate (such as gender equality, sustainable development, economic inequality, etc.) could have a positive impact?
4	Are you interested in learning more about public policies that promote gender equality, sustainable development, economic inequality, etc.?
5	Would you be willing to participate in a discussion on public policies on gender equality, sustainable

Appendix 7

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Table A7. Estimated statistical power for a two-sample means test by fields of study for the variable responses to competition

Field of study	Control group mean	Digital group mean	sample size of the control group	sample size of the treatment group	Standard deviation both groups	Power
Economics	0	0.07	43	44	0.0196	0.8
Political Science	0.11	0.11	18	18	0.0438	-
Computer science	0.03	0.03	31	30	0.0229	0.05

Note. Statistical power represents the probability of correctly detecting a true difference between groups when such a difference exists in the population. By contrast, researchers may make a Type II error, failing to detect a true difference and erroneously concluding that there is no difference between the groups. This type II error rate is denoted by beta and is conventionally set at 0.20, meaning a desired probability of less than 20% of a false negative conclusion. To determine the sample size needed for a study, researchers must specify beta or the power of the study, which is calculated as 1-beta. A power of 0.80, or 80%, indicates an 80% probability of avoiding a Type II error and detecting a specified effect if it actually exists (Noordzij, Zoccali & Jager, 2011). Data from authors' calculations

Youth interview questionnaire

General idea: to identify factors that may be related to the participation of UPEA economics students in the gender equity essay writing competition.

- Q1. how did you hear about the **call** for participation in the competition? was there anything that struck you favourably? anything that you did not like or did not understand?
- Q2. when the call for entries was launched, how did you decide to **participate?** why did you decide to participate (did you not decide to participate)? where were you at the moment (studies, work, family, other)?
- Q3. what do you think about the objective of the call? what do you think about gender **equity** in the Bolivian labour market? to what extent is it a problem that should be addressed by 'public policy'?

Interview for teachers

General idea: to identify factors that may be related to the participation of UPEA economics students in the gender equity essay writing competition.

- Ql. are you familiar with the **call** for participation in the competition? is there anything that caught your attention?
- Q2. What factors do you think might have influenced the **participation** (non-participation) of young people in essay writing?
- Q3. what do you think about the objective of the call? what do you think about gender **equity** in the Bolivian labour market? to what extent is it a problem to which young people can contribute from the 'public policy' point of view?