

# Effects of environmental, sexual and religious education on abortion intention in a public university in central Mexico

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## Abstract:

Sexual and reproductive health is often seen as distant from the Sustainable Development Goals and opposed to the religious worldview. The objective of this work was to empirically test an educational workshop with these dimensions in order to promote the use of condoms as an indicator of intellectual capital formation. Four studies were conducted over a subsequent three months. in the same sample of 100 students enrolled in a public university in central Mexico. The results demonstrate a growth curve in learning to use condoms, even though the course contents included the teaching of religious meanings around abortion, the promotion of family planning as a factor of sustainability and the reduction of inexperience. contraceptive as a determining factor of unwanted pregnancy. In relation to the state of the art, the results were discussed, and the extension of the study and the model was recommended in order to establish the compatibility of the three dimensions in the formation of intellectual capital from the framework of the SDGs.

**Keywords:** condom use; education for sustainable health; promotion of self-care; sustainable development goals; termination of unwanted pregnancy

## Introduction

The history of religious, environmental, and sexual education is complex and varies significantly across different cultures, societies, and time periods. Here is a brief overview of each:

In ancient civilizations, religious education was often closely tied to cultural practices and traditions (Winkler & Scholz, 2021). Schools were established to teach religious doctrines, rituals, and moral values. During the Middle Ages in Europe, religious education was primarily conducted by the church. Monasteries and cathedral schools were centers of learning, and education was focused on theological studies. The Protestant Reformation in the 16th century led to changes in religious education. The emphasis on reading the Bible and individual interpretation of scripture became more prominent. In many countries, religious education became part of the school curriculum. However, debates over the separation of church and state have led to varying approaches, with some nations providing religious education as an option and others excluding it from public schools.

The roots of environmental education can be traced back to early civilizations where people had a close connection with nature (Przygoda, Świąś & Rozpędowski, 2023). Indigenous cultures often had sustainable practices and a deep understanding of their environment. The environmental

movement gained momentum in the mid-20th century with concerns about pollution, deforestation, and other ecological issues. Educational programs started incorporating environmental studies, promoting awareness, and encouraging sustainable practices. Environmental education became more formalized and integrated into school curricula globally. The focus expanded to include ecological principles, biodiversity, climate change, and the importance of conservation.

Sexual education has ancient roots, with some societies providing informal guidance within families or through cultural practices (Durka, 2000). However, in many cultures, discussions about sex were considered private and not part of formal education. As public health concerns grew, particularly with the spread of sexually transmitted infections, some countries began to introduce sex education, often focusing on hygiene and disease prevention. Sexual education evolved, incorporating topics such as reproductive health, contraception, and relationships. However, there were ongoing debates about the appropriate content and the role of schools versus families in sexual education. Today, sexual education varies widely globally. Some countries have comprehensive programs that cover a range of topics, while others may have more conservative or abstinence-based approaches.

Cultural and religious beliefs continue to influence the content and implementation of sexual education.

In all three areas—religious, environmental, and sexual education—the history reflects societal values, cultural norms, and evolving perspectives on the role of education in shaping individuals' beliefs and behaviors (Biström, 2022).

The theories underpinning religious, environmental, and sexual education are often grounded in the broader philosophy of education, cultural beliefs, and societal values (Truett et al., 1992). Here's an overview of the theories that have influenced these educational domains:

This theory suggests that religious education should involve the direct imparting of religious beliefs, doctrines, and practices (Klingberg & Boulding, 1959). It often assumes a didactic approach, with the goal of transmitting a particular religious tradition to the next generation. Proposed by James Fowler, this theory focuses on the psychological and cognitive development of faith. It suggests that religious education should align with the individual's stage of faith development, fostering spiritual growth and understanding. This theory emphasizes critical thinking and encourages students to engage with various religious perspectives. It aims to promote religious literacy, tolerance, and an understanding of the diversity of belief systems.

This theory places nature at the center, emphasizing the intrinsic value of the environment (Harahap, 2023). It advocates for a deep ecological perspective and encourages a sense of interconnectedness between humans and the natural world. Grounded in the idea that learning should be rooted in local environments, place-based education integrates ecological principles with a focus on the specific ecological and cultural context of a community. Environmental education often draws on systems thinking, which explores the interconnectedness of ecological systems. This approach encourages students to understand the complexity of environmental issues and their interrelated causes and effects.

Comprehensive Sexuality Education (CSE) is an approach that goes beyond the biological aspects of sex and aims to provide a comprehensive understanding of relationships, communication, consent, gender roles, and sexual health (Bugiulescu, 2017). It often encourages critical thinking and decision-making skills. This approach emphasizes promoting abstinence until marriage as the sole strategy for preventing unintended pregnancies and sexually transmitted infections. It often avoids discussing contraception or non-heteronormative relationships. This theory focuses on promoting positive sexual health and well-being. It includes aspects of sexual education that aim to empower individuals with knowledge and skills to make informed and responsible decisions about their sexual health.

In all three areas, educational theories may be influenced by cultural, religious, and ethical perspectives (Gunay, Cavas & Hamurcu, 2015). The choice of theory often reflects the educational goals, societal values, and the desired outcomes of the educational process in each domain. As these areas continue to evolve, educators and policymakers may draw on a combination of these theories to create comprehensive and culturally sensitive educational programs.

Measuring the effectiveness of religious, environmental, and sexual education involves assessing various dimensions such as knowledge acquisition, attitudinal changes, behavioral outcomes, and the impact on individuals and communities (Hoon, 2014). Here are some common methods used to measure each type of education:

Evaluate students' understanding of religious doctrines, rituals, and beliefs through standardized tests or assessments (Robbins & Francis, 2010). Measure attitudes, values, and beliefs related to religion. This may include questions about the importance of faith, religious practices, and tolerance. Assess students' participation in religious activities, rituals, or ceremonies as an indicator of their engagement with religious education.

Use assessments to measure changes in knowledge about environmental issues, ecological principles, and sustainable practices before and after educational interventions. Monitor environmentally friendly behaviors and actions to evaluate the translation of knowledge into practical actions, such as recycling, energy conservation, or participation in environmental initiatives. Gather information on individuals' attitudes, values, and intentions related to environmental conservation and sustainability.

Test students' understanding of reproductive health, contraception, sexually transmitted infections, and other relevant topics (Yusuf, 2023). Collect data on sexual behaviors, relationships, and decision-making to assess the impact of sexual education on individuals' choices and actions. Encourage students to reflect on their attitudes, values, and beliefs regarding sexuality through written assignments, journals, or group discussions.

Assess changes over time by conducting studies that follow individuals or groups from the beginning to the end of an educational program. Use methods such as interviews, focus groups, or case studies to gain a deeper understanding of the subjective experiences and perspectives of individuals involved in religious, environmental, or sexual education. Administer standardized instruments to gather quantitative data on knowledge, attitudes, and behaviors, allowing for statistical analysis and comparisons.

Define specific learning outcomes for the educational program and evaluate the extent to which these outcomes are achieved. Collect feedback from students, teachers, and other stakeholders to understand their experiences and perceptions of the educational program. Evaluate the broader impact of religious, environmental, or sexual education on communities, considering changes in social norms, cultural practices, and community engagement.

It's important to note that the effectiveness of these measurement methods depends on the specific goals and objectives of the educational program, as well as the cultural and contextual factors influencing the targeted audience (Bradley & Saigol, 2012). Additionally, ethical considerations, such as ensuring privacy and cultural sensitivity, should be taken into account when implementing measurement strategies in these sensitive domains.

However, the measurement of religious, environmental and sexual education, although they may be factors in the formation of intellectual capital, have not been oriented towards the prevention of unwanted pregnancy. Therefore, the objective of this work will be to establish the differences before and after a religious, environmental and sexual education program on abortion intention.

The hypothesis to be demonstrated will be that there will be significant differences before and after the religious, environmental and sexual education course with respect to abortion intention.

## Methods

### First Study

A correlational study was carried out with a non-probabilistic sample of 100 students ( $M = 28.34$   $SD = 3.5$  age and  $M = 10,893.00$   $SD = 456.00$  monthly income) from a public university in central Mexico.

Abortion Intention Scale was constructed which included 40 items with seven response options ranging from 0 = “not at all likely” to 7 = “quite likely.” Reliability (0.780) reached sufficient values for analysis of sphericity and adequacy [ $\chi^2 = 1800.022$  (105df)  $p = 0.001$ ;  $KMO = 0.798$ ] needed for validity which ranged between 0.324 and 0.546

The religious, environmental and sexual education workshop was oriented towards the representation of the use of condoms as a symbol of self-care. During the two-hour session, the opening included presentations by nurses on the use of male and female condoms. Subsequently, subgroups were organized to discuss the usefulness of condom use and the closing consisted of the preparation of a decalogue on the impact of condom use on the personal life project.

Respondents were selected based on their affiliation to internships and professional service in public health centers. The concepts were established through focus group and Delphi techniques. The survey was administered at the public university facilities. Confidentiality and anonymity contracts were provided to guarantee proper processing of information and disclaimer of liability for misuse of personal data.

The data were processed in JASP version 18 and the coefficients of reliability, sphericity, adequacy, validity, adjustment and residual were

estimated to contrast the hypothesis relating to the significant differences between the theory and the empirical literature reviewed.

Second, third and fourth study

After three, six and nine months, the abortion intention scale was applied. Instructions were the same regarding the role of the respondent and responsibility for the project. The response options did not change and the suggestions for a sincere response because it was a non-profit study or consequences on their academic status were maintained.

All information was processed in Excel and Jasp version 17 in order to estimate the coefficients of the latent growth curve model and the empirical test of the hypothesis.

The interpretation of the values was not different, and the adjustment parameters close to unity and the residuals close to zero continued to be considered as evidence of non-rejection of the hypothesis.

**Results**

The values of the latent curve exceed zero (see Table 1 and Fig. 1). Such a finding indicates that differences prevail in the learning curves related to abortion intention. In other words, the results demonstrate that the religious, environmental and sexual education workshop related to condom use indicates a significant difference in the aversion to unwanted pregnancy.

Table 1. Latent curve							
						95%% Confidence Interval	
Component	Parameter	Estimate	Std. Error	z-value	p	Lower	Upper
Intercept	Mean	1.952	0.164	11.928	< .001	1.631	2.272
	Variance	0.819	0.652	1.257	0.209	-0.458	2.096
Linear slope	Mean	0.563	0.082	6.911	< .001	0.404	0.723
	Variance	-0.479	0.323	-1.483	0.138	-1.113	0.154

Table 1: Latent curve

The model includes the four measurements from the first to the fourth study (see Figure. 2). Non-standardized values are seen but the variances and covariates of the latent variables (I for intersection factor and L for linear

slope factor) their loadings are set at unity for the first factor and the loadings range from 0 to 4 for the second. factor. These results indicate that the growth curve model describes the learning of condom use in the surveyed sample.

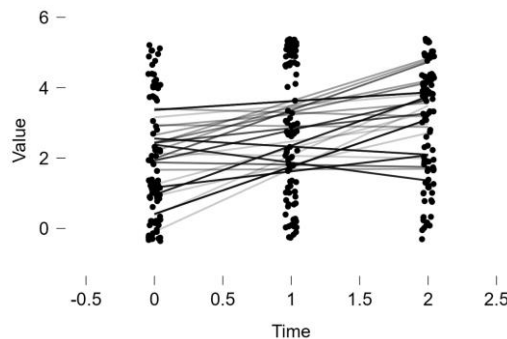
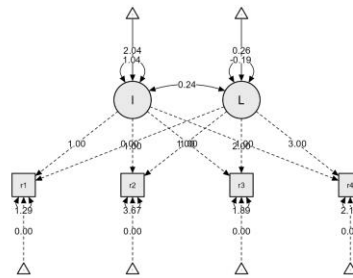


Figure 1: Curve plot

The adjustment and residual parameters [ $\chi^2 = 60.285$  (5 df)  $p = 0.001$ ], GFI = 0.910; SRMR = 0.211; RMSEA = 0.260] indicate the confirmation of the hypothesis related to the significant differences after the religious,

environmental and sexual education workshop delimited in the meanings of condom use in order to influence abortion intention.



**Figure 2:** Model plot

## Discussion

The contribution of this work to the state of the art lies in the establishment of a latent growth model which describes the learning and impact of a religious, environmental and sexual education workshop limited to the use of condoms in order to reduce the intention of abortion. Such findings corroborate the theory of the formation of intellectual capital which is structured in a humanistic, technical and collaborative dimension. These dimensions were encouraged in the educational workshop and the consequent learning is an effect of this cognitive teaching structure.

However, these results contradict studies on religious and sexual education where asymmetric effects on abortion intention are seen (Baring, 2011). Although both factors do not seem to have a significant impact, religious education promotes greater intolerance to condom use and abortion intention (Stephens, 2013). In contrast, sexual education generates greater empathy towards the intention to abort. In an opposite sense, the present study demonstrated that both factors combined with environmental education favorably impact condom use and thereby reduce the intention to abort due to contraceptive inadequacy. The lines of study that emerge from these findings suggest a new longitudinal project of contrast between sexual and reproductive education versus environmental education in order to establish whether ecocentrism affects condom use under the logic that there is family planning. then consumption needs decrease and natural resources are conserved. Or, the contrast of environmental education with religious education under the premise that the meanings around the care of resources is a positive action in the Judeo-Christian worldview with respect to ecocentrism that consists of the preservation of nature.

The limits of the present study lie in the representativeness of the sample and the generalization of the results to a population. Furthermore, the adjustment parameters reached intermediate values that indicate the rethinking of the model in terms of the structure of its indicators, but the increase in the sample size and the instrument will reduce the limits of the study.

## Conclusions

The objective of this work was to observe the variation over time of a religious, environmental and sexual education program regarding condom use as a determining factor of the intention to abort in a public university in central Mexico. The results indicate that there are significant differences in the growth curve. Such a finding contravenes the assumption that religion and sexuality are incompatible when predicting abortion intention. In this sense, the limits of the study guide the lines of research consisting of empirically comparing the religious, environmental and sexual dimensions

with respect to condom use as an indicator of sustainable human and sexual development.

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