

Cryptology for Christ: Steganography, Evangelism, And Closed Access Countries

By:

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Special Thanks:

Caleb Chen – President of the Liberty Cybersecurity Club &
Liberty Cybersecurity Club

Newer Christian Trying to Serve God



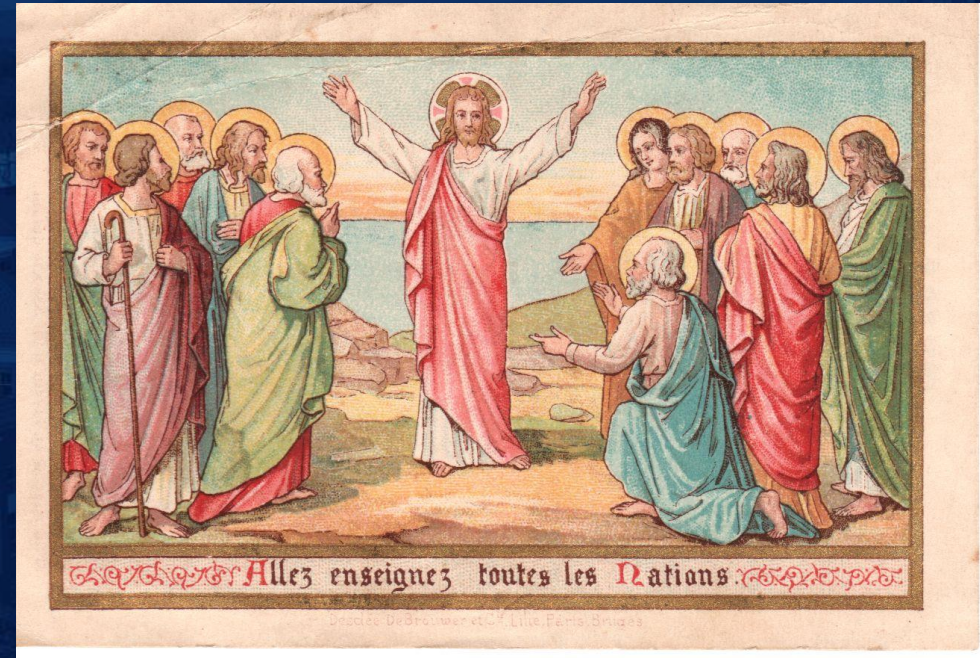
Exodus 36:1 Provides Biblical Basis for Using Time Period Technological Skills For God

- “Bezalel and Oholiab and every craftsman in whom the Lord has put skill and intelligence to know how to do any work in the construction of the sanctuary shall work in accordance with all that the Lord has commanded.”



How Can Technology Advance The Great Commission?

Mathew 28:19-20 (NASB) “19 Go, therefore, and make disciples of all the nations, baptizing them in the name of the Father and the Son and the Holy Spirit, 20 teaching them to follow all that I commanded you; and behold, I am with you always, to the end of the age.”



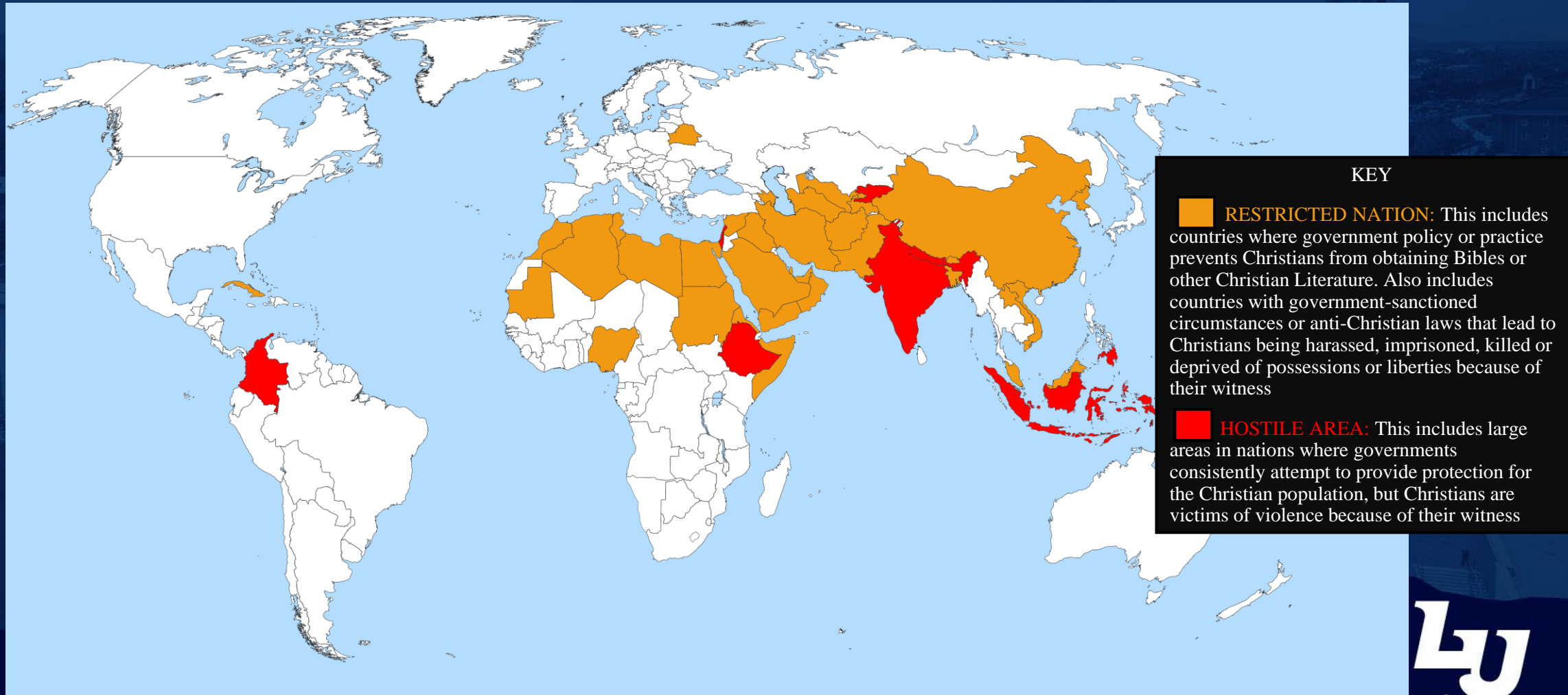
Research Question: Can Steganography Safely Spread Bibles in Closed Access Countries

Use Case:

- <1 Hour Training
- No Specialized Software
- Circumvent Encryption Laws
- Not Automatically Flagged
- Survive Reasonable Suspicion



Closed Access Countries Restrict Bible Distribution and The Great Commission



Hiding Bibles in Plain Sight



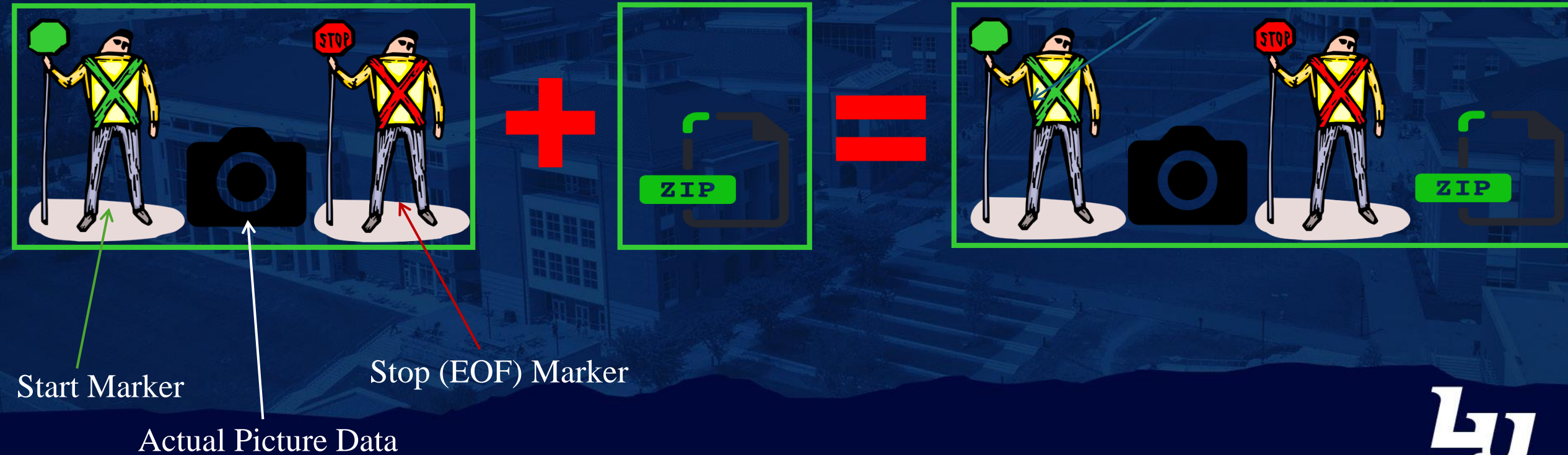
Figure 1. A literal demonstration of Bibles hidden in plain sight. Made with DALL-E by Haynie, K. and Jaus, C., 2024.

Append Insertion Steganography Places Information After End of File (EOF) Marker

Original Image


Bible.Zip

New Image With Bible



Technical Method for Append Insertion Steganography

Command



```
C:\Users\Public\Pictures> COPY /B source.png + bible.zip secret.png
```

Figure 2. The command to required for Insertion Append steganography.


Compressed Text



```
.Hi*ti;moCnõµ;u|b07ã|õuëøçNj0|ârTà[·úS!°AqmÍ*0  
„î9U8§Û0ÖA,úLYDHòòwre®|ptðnL|by %×çZ|e|0%Pd`%p°°  
%7@á0`}-GõiuTúúÚýø`Ú€3|Ç·.Biã`"Tò}'f\øB50É#C0)šDT|f  
+Æ+|]à*·/V9MæRS"4ñÚ0w(L,0ò²`Â®'f$×0|YVëÍfý3  
{B|æ|ñw#Éšà·|Á+|4`3%«PNI|0:ò0|/æ$pdR`ÁÍiò(0Hã7vÍ  
%`XýèooÇÚAYòYšIY&Hã5-|ci|07T$šà| Y|<ò-|ÚY0ñH  
íDKHH3ÁVÚÁ;É6|ãø$§|à.ú|±€JBO0<`DBp|H^µxq|  
±|5fÁx"èT|~xkšM|S`|0%  
|ÁãÉ,]ýYÉ`FB|0Tã»yçX|07 00z%|0f#8™<@h o`²By
```

Figure 4. Data of a compressed Bible file at the end of an image file, viewed from a text editor.

Plain Text



```
Ge1:27 So God created man in his own image, in the image of God  
created he him; male and female created he them.  
Ge1:28 And God blessed them, and God said unto them, Be fruitful, and  
multiply, and replenish the earth, and subdue it: and have dominion  
over the fish of the sea, and over the fowl of the air, and over  
every living thing that moveth upon the earth.  
Ge1:29 And God said, Behold, I have given you every herb bearing  
seed, which is upon the face of all the earth, and every tree, in the  
which is the fruit of a tree yielding seed; to you it shall be for  
meat.  
Ge1:30 And to every beast of the earth, and to every fowl of the air,  
and to every thing that creepeth upon the earth, wherein there is  
life, I have given every green herb for meat: and it was so.  
Ge1:31 And God saw every thing that he had made, and, behold, it was  
very good. And the evening and the morning were the sixth day.
```

Figure 5. A Bible text file extracted with 7-zip from a steganography-appended image.

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Special Thanks to the Liberty Cybersecurity Club for Hosting Our Experiment

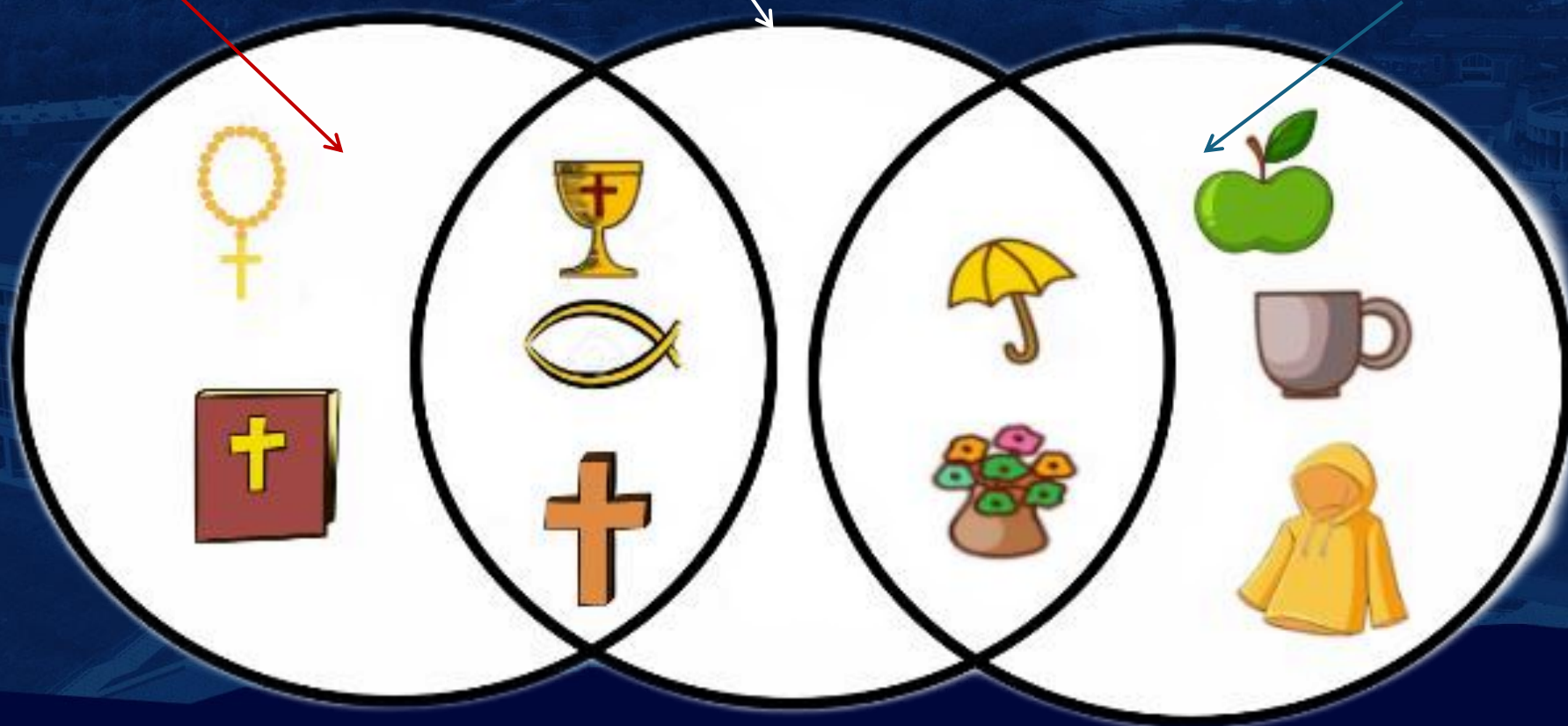


Experiment Setup With Items Eliciting Suspicion on Selected Steganographic Images

Warranted Suspicion

Random Selection

Unwarranted Suspicion



Deception Plan For Three Groups of Variable Experience Levels with Cybersecurity



Group Seeding Was Done Blind to the Experiment Observers
and Coordinated by President of the Liberty Cybersecurity Club

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Deception Plan For Three Groups of Variable Watch Floor Information on Items

“These are Suspicious... Investigate”

“Do These Images Look OK?”

“These use Steganography”



Resounding Successful Results

Legitimate Suspicion

Warranted Suspicion

Unwarranted Suspicion

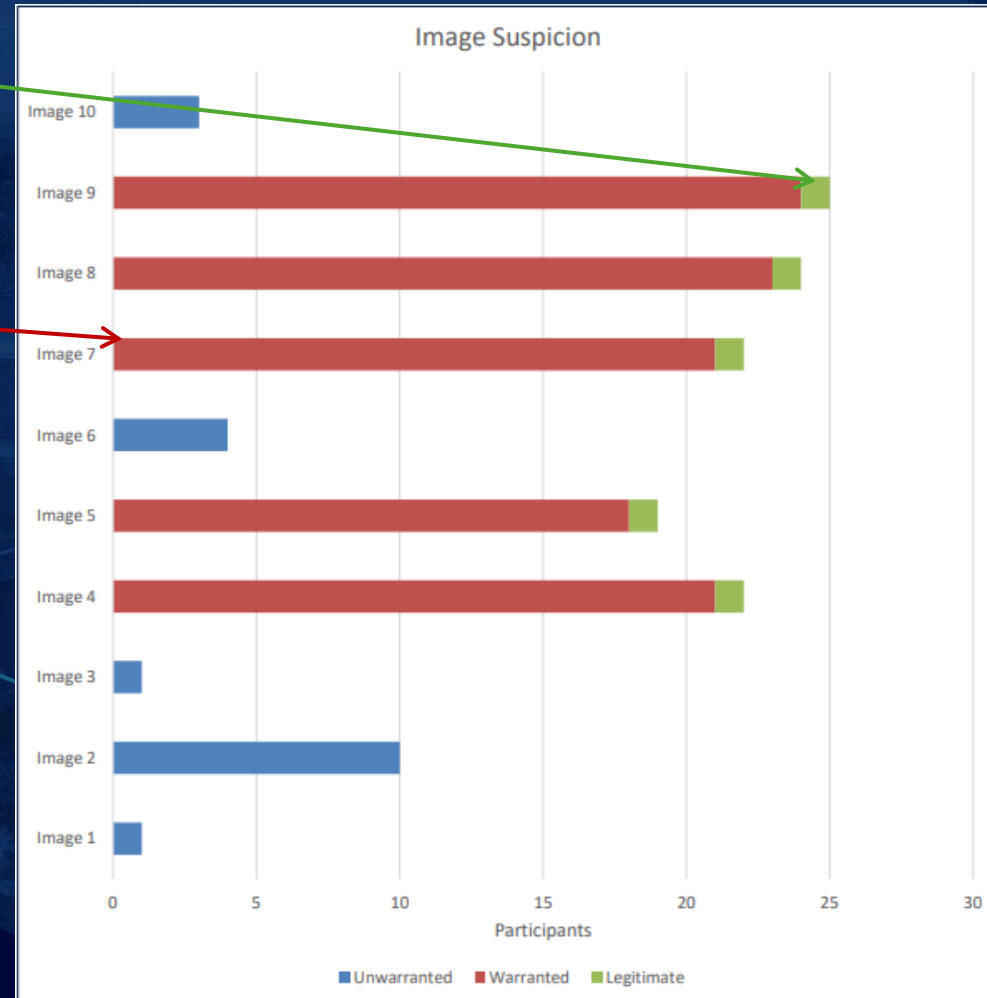


Figure 3. Suspicion of images as documented by participant notes. Unwarranted notes were taken on innocent images, warranted notes were included recognition of religious imagery on images employing steganography, and legitimate notes indicated suspicion of steganographic images warranted by technological evidence.

Future Work and Applications

- Explore enhanced size reduction methods for steganographic content
- Extend Technique to other file types i.e. Audio and Video
- Automate the Append-Insertion and recovery
- Determine optimal public transmission channels for steganographic content



Conclusion of Presentation

- We identified our Testable Research Question as: “Can Steganography Safely Spread Bibles in Closed Access Countries”
- We successfully experimented, after attaining approval from Liberty Institutional Review Board with the following variables:
 1. Level of Suspicion (Deception plan)
 2. Varying Skillsets
 3. Also included Time-Induced Pressure for Simulation
- Collected and Analyzed Information to Answer “Yes” to our Research Question
- Explained Future Application of this Research and Conformed to Research Practices



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Guidelines

- must be **no more than 15 minutes** in length.
- may use any of the **16×9 PowerPoint presentation slides** found on the bottom of [this page](#).
(PowerPoint files must be converted to PDFs before they are submitted.)
- **Research Design:** Identifies and develops a research question - The research design includes a **testable question** appropriate to the discipline according to audience and purpose within a specific context
- **Methodology:** Successfully experiments with one or more manipulated variables - Experimented with one or more manipulated variables with adequate controls and innovative experimental design
- **Interpretation of Results:** Analyzes collected information to answer the research question- Organized the analysis of the results with no interpretive error.
- **Conclusions:** Analysis conforms to research practices within the discipline - Explains future applications of the project and properly employed discipline-specific formatting and citation
- Delivery and Engagement with the Audience - Media design and delivery enthusiastically engaged the audience and demonstrated professional delivery.
- Answers to Questions - Answers showed exceptional insight into the field.