

Assessing the Pakistan Connection Game  
An Interactive Qualifying Project Report

submitted to the Faculty

of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

by

---

Ian M. Bennett

---

Keith Craig

---

Nathan Tibbetts

Date: April 26, 2007

---

Professor John M. Wilkes, Project Advisor

# Table of Contents

<b>TABLE OF CONTENTS</b> .....	<b>1</b>
<b>ABSTRACT</b> .....	<b>2</b>
<b>INTRODUCTION</b> .....	<b>3</b>
<b>THE GAME</b> .....	<b>5</b>
<i>Game Description</i> .....	5
<i>Game Condition as Received</i> .....	7
<b>THE BUILD-UP AND RUN OF THE GAME</b> .....	<b>8</b>
THE BUILD-UP .....	8
THE RUN .....	9
<b>ANALYSIS</b> .....	<b>15</b>
INTRODUCTION .....	15
THE COMPREHENSIVE IMMERSION FACTOR .....	15
<i>Immersion</i> .....	16
<i>Comprehension</i> .....	16
<i>Comprehensive Immersion Factor (CIF) Formula</i> .....	16
THE PLAYERS .....	16
IN CHARACTER NOTEBOOK FINDINGS .....	18
GAME PLAY ANALYSIS .....	20
“SHOPPING FOR BOMBS” .....	21
<i>Notebooks</i> .....	21
<i>In-Game</i> .....	22
<i>Grades</i> .....	22
OUT OF CHARACTER NOTEBOOKS .....	22
QUESTIONNAIRE .....	23
CONCLUSIONS .....	24
<b>CRITIQUE</b> .....	<b>25</b>
PROBLEMS & SOLUTIONS .....	25
RECOMMENDATIONS .....	27
<i>Pick-up and Play</i> .....	27
<i>Academic</i> .....	28

## **Abstract**

A previous group created an LRP to illustrate the issues facing countries and the IAEA in regulating nuclear proliferation. Despite almost a year of development, the game has not been tested. The goal of this project is to run the game and see how effective it is in a classroom and interest group environment.

## Introduction

The WPI community has created several L RPGs (Live Roleplaying Games) over the years for various purposes. Most of these focused on technological issues facing society. One such game was a nuclear proliferation game featuring the IAEA, the Nuclear Non-Proliferation Agreement, and several important signatory nations. The goal of the game was that players would take the roles of diplomats and advisors and moderators would take the roles of IAEA agents and this would allow the players to gain a deeper understanding in the issues surrounding nuclear power and weaponry.

The game has undergone several revisions over its lifetime, changing in several key aspects. Originally, the game was designed much more loosely, lacking character sheets and other more structured elements. It was assumed that most of the enjoyment of the game would come from the players coming up with their own characters. During a playtest of the game, it was found that this was true, but only for certain personality types. Individuals who scored on the Sensing side of the MBTI fared significantly better than those on the Intuitive side. Additionally, this also assumed a bit of knowledge on the parts of the players and moderators. A player had to come in with either a dedication to learn, or a significant amount of preparation time to be able to cope with all the information that was needed to competently play the game.

As a result of these problems, it was revamped, introducing character sheets and country reports for the various players in the game. For example, China would have character sheets for the Diplomat, the Science Advisor, and the Military Advisor, in addition to a thorough information sheet on the country itself. These additions were

meant to assist both those players less adept at improvisation and those players less knowledgeable about the subject at hand.

After some analysis, it was found that this style of game, while hopefully more equally beneficial and more widely playable, was prone to accuracy problems. Having more detailed characters and country descriptions, while lessening the improvisation burden, required more data; data that was quickly changing.

At this point, several issues about the game needed resolution. Was the game playable in a classroom environment? Was it playable in a special interest group environment (e.g., Student Pugwash)? How specific could the information sheets be without sacrificing too much robustness in the face of rapidly changing current events? A play test was required at this point, and this play test, and subsequent game revisions and recommendations was the goal of our group.

# The Game

## Game Description

The Pakistan Connection game is a Live Role Playing Game, or just LRP. This type of game involves assuming the role of a character either fictional or factual, and playing out some scenario as that character, acting and speaking as the character would to the best of your ability. More specifically, this game is akin to another LRP called Model UN, in which participants are the representatives of the various member nations of the United Nations and debate over a topic of some kind that the UN would handle and attempt to reach a resolution. The key differences are that instead of the participants being representatives in the UN, they are representatives for a special meeting of the International Atomic Energy Agency (IAEA). Also each of the participants is generally not the sole representative for their country, the intent is to have four members for each nation. Finally, instead of fielding any of a number of topics, this meeting is meant to determine the necessary powers of the IAEA in order to best fulfill its purpose of controlling the proliferation of nuclear technology. An entire run of the game is mediated by someone playing what's called the game master. This person serves to keep the game organized, to be a resource of information about the game and the topics in the game, and as a connection to the outside world. This last purpose allows the participants to act on the outside world in order to further help their role's or country's goals..

Over the course of the game, organized discussion reminiscent of what would be seen in an actual political body occurs with the intent of trying to achieve an agreement on what the powers of the IAEA need to be. This is where the bulk of a participant's role

is expressed as each participant attempts to work towards what best suits their role's country and/or what best suits their role. Sometimes these two goals are in line with each other, however some of the roles are written to potentially subvert a delegations end goal to meet what that role really wants to happen. Along with this, the game allows for delegations or roles to cause events in the “real” world to occur, in order to pressure another country's delegation or even a specific other role. This is conducted through the game master and is up to the game master as to how these contacts with the outside world affect anything in the game. Some of these contacts can include simply contacting a delegation's respective country for information, attempting to coerce another role by getting in touch with outside resources to perform something that would affect that role, or just about anything else that a participant can come up with that serves their role's purpose but is realistic to the game.

Generally this is all meant to occur in a set amount of time determined mostly by the organizers of the game. As the end of the game approaches, the delegations are encouraged to come up with a resolution that compromises between the various stances and viewpoints that have formed over the course of the discussions. Depending on how the game has progressed this might be a quick process with all of the delegations mostly agreeing on a single set of powers for the IAEA and the outcome of the game is a single resolution, or it might be a lengthy process that never reaches an agreement on any set of powers and there is no actual outcome to the game. While a goal of the special meeting in the game is to achieve some kind of agreement amongst the delegations, it is not a goal of the game itself and so either outcome is perfectly acceptable.

## **Game Condition as Received**

This game was produced by Josh Lane and Mike Roberts of the previous IQP group. The game included character sheets for a Diplomat, Financial Advisor, Military Advisor, and Science Advisor for each country, a briefing for each country, nuclear histories for a few of the countries, background information on nuclear fuel and production of nuclear fuel, synopsis of the book *Shopping for Bombs*, and a few other game related documents. The character sheets provide a brief history and motivation in the game for the role a participant is playing. The country briefings and nuclear histories provide some background for the participants playing roles from the same country and helps the participants to better understand where their roles are coming from in order to better play the role. The rest of the material is meant to provide a base knowledge of the overall topic at hand for discussion in the special meeting of the IAEA. For all essential purposes, this was everything needed to run this kind of game in terms of reading material for the participants.

While we did have everything needed to run the game, the various documents weren't without errors. Some were grammatical or structural and thus easy to fix, others however were factual and meant time spent research the information to make the corrections. Since this was meant to be a field test of the game as Josh and Mike had produced, no corrections were made prior to running the game.



# **The Build-Up and Run of the Game**

## ***The Build-Up***

This game was designed to not only be used in educational settings such as classes and lectures, but also in general awareness raising events and clubs that participate in pick up and play L RPGs. Knowing this, we wanted to make this game known to as many people that might use of it as possible. In order to achieve this we sent a member of our project group to a conference in Baltimore, Maryland being held by the International Association for Science, Technology, and Society (IASTS) that took place during our project. This was their 22<sup>nd</sup> annual conference and was a perfect opportunity to present the game and our intentions of field testing the game to people who would be most interested in the material that this game covers. During the conference, a presentation on the game's topic matter and usefulness as a teaching aid and an awareness raising tool on the topic of nuclear proliferation was given. This was met with some interest from those that attended the presentation as judged by the numerous questions on the game's content and how it was played that were received.

In addition to this conference, a national organization called Student Pugwash, more specifically the president of the national office took interest in the game and requested a meeting to discuss the game and its possible dissemination to all of the Student Pugwash chapters in the country. Since the national office was recently moved to Washington D.C., it made it trivial to meet after the conference, given that we were already most of the way to Washington D.C. During the meeting, we discussed the game and how it could be useful to Student Pugwash Chapters as an awareness raising event on

the topic of nuclear proliferation and also as an event for their upcoming national conference. We also talked about the upcoming trial run of the game and mentioned that we would be writing an analysis and general critique of the game that we would send once it was complete. The overall outcome of the meeting was very positive and the general feeling was that if we had a positive result on the test run of the game, then the game would be put to use by Student Pugwash.

### ***The Run***

The field test of the game was set up to be played during a class on the Technology-Society Debate. The game spanned 6 hours broken into two hour sessions. Two of those sessions, the first and last, were run in class with the students that were in the class, the other session was run at night with an open invite for outside participants. There were 12 students signed up for the class and they were all allowed to choose their own groups and countries, spread out over all 10 countries that are part of the game. Which role each student played, however, was assigned shortly before the documents were made available, with the general rule of ensuring each delegation had at least a diplomat and then a science advisor if there two in the group. Approximately 4 days before the first session in class, the various game documents were made available to the students via a web page set up with basic security to limit students access to only the documents they were supposed to have, namely anything related directly to their role, country, and any documents meant for general consumption. This was done to make sure that the participants didn't know anything about the other roles participants were playing outside of the game, and thus couldn't affect any of the differing objectives that some of the roles had. Finally, the project members and our advisor played self generated roles as

member of the IAEA there to preside over the meeting, with our advisor also serving as game master.

The first session of the game got off to a slow start because there were no documents provided that described how this type of game is played. This left us feeling a little under prepared and under informed on how to lead the game. Luckily, our advisor having had plenty of experience in running these types of games, provided the necessary guidance that was needed to get the game started. While this gave us the structured start that we needed, the game was still slow as only a few students had participated in this type of event. Thus at the outset, the students generally stuck to their roles and didn't provide much debate.

The session continued with debate over what was deemed necessary to control nuclear technology, if any was deemed necessary at all. The general feeling amongst the participants was that the super powers that already possessed numerous nuclear weapons should be putting forth more effort to disarm according to the original Non-Proliferation Treaty. Also, there was a general distrust amongst all of the delegations, as none felt entirely like other delegations would actually uphold their end of any decided course of action. The nations that didn't possess nuclear weapons expressed feeling vulnerable to those that had nuclear weapons and sought to have nuclear weapons until the other nations disarmed. When the end of the session came, no unified position had formed, with each delegation generally having their own specific ideas on what powers the IAEA should or should not have.

The second session was set up with an open invitation to anyone who wanted to participate with printed copies of the same documents that the students received for their

roles that new participants would need to play the roles we gave them. We had hoped that we could get enough outside participants for this session to have two people per delegation. Unfortunately, this did not end up happening with only 5 new people joining us for the night session. Also, a few students from the class either did not show up or showed up late, resulting in some delegations not having any representatives, at least initially. While this did create a little initial confusion, the game still picked up where it had left off after we gave a brief overview of what happened last time to refresh the memories of the students in the class, but more importantly to bring the new participants for the night up to speed on what had already occurred.

Some further debate was encouraged to get the new participants into the game and to help the delegations form a few general positions rather than each delegation with their own. After, awhile three general positions formed, one that was centralized around a plan called the Russian Plan, one that was an extension on the Russian Plan, and one that involved massive changes to the IAEA overall. The Russian Plan was the idea of using the current nations that possess the technology to produce nuclear fuel for civilian nuclear power plants as suppliers to the nations that do not have the technology, but wished to have a civilian nuclear power plant. The general idea being to limit the amount of technology that is provided to the nations that do not have it, since it is known that having the technology needed to produce nuclear fuel is all that is needed to also produce weapons grade nuclear material. It also included the necessity for consequences for nations that were a supplier or customer if anything that was not allowed by the IAEA was to happen. Anything like this would be found through announced and scheduled inspections of a nation's civilian and military facilities.

The extension to the Russian Plan still positions current nuclear technology possessing nations as suppliers to those that do not possess the technology. A key difference being that the inspections would be done on short notice, in order to try to prevent a nation from intentionally hiding anything that might be viewed as not allowed by the IAEA. Also, it required a sub-agency to the IAEA that served to gather data on the activities of the various participating nations in order to try to stop any illicit activity that might occur in between inspections. There would be incentives provided to encourage nations to openly provide information they might find themselves about other nations, also incentives for “good” behavior, namely lack of illicit activities and willingness to cooperate.

The last position involved a far greater change to how the IAEA currently operated. This included better representation of member nations in the IAEA in order to maintain nations' best interests. It also included allowing all nations to proceed on their own with minimal interference but under regulation which included no weapons grade material. Much like the other positions, it included consequences for nations that were found producing weapons grade nuclear material.

At this point, each of the delegations were encouraged to meet with the other delegations that shared the same position as themselves and further define their positions and their changes to the IAEA. Each of the groups was watched over by one of us for the sake listening on how each group did in devising a full plan and to make sure we didn't miss anything that was going on in each of these groups. This ended up using up most of the remaining time for the session with the rest of the session being devoted to hearing what each of the groups had developed. Each of the plans were right in line with what

had been stated before, just more detail on how it was to be accomplished. After ensuring that at least one person from each group that would be at the final session had information on the groups plan, the session was concluded with a brief questionnaire designed primarily to gather information on the experience of the participants who had joined us for this session.

The last session that was conducted in class with only the students was the session that we hoped would result in final proposals on the powers of the IAEA and a vote to see which would be enacted. The session started with a representative restating each groups current proposals so that everyone was aware of the outcome of the previous session. After some discussion it was made apparent that the two groups that related to the Russian Plan had close enough preliminary proposals that they should convene to see if they could unify their positions under one proposal. At the same time the third group was to meet to finalize their proposal as well. During this time, the role our advisor was playing met with the group that was proposing more drastic changes to propose his own plan that included major changes to the IAEA as well.

The combined group based on the Russian Plan ended up merging their respective positions into a single proposal that included everything they shared in common and a few more details on how power plants were to be run and inspections were to be conducted. The other group that sought greater changes accepted the plan our advisor's role proposed to them with a few changes. This proposal involved a tiered system of suppliers and customers that allowed finer control over what suppliers and customers could and couldn't do based on their actions and also allowed customers to transition to a supplier position under a tightly monitored transition period. The overall intent was to

have those nations that already possessed the technology to produce nuclear fuel to be suppliers and those that did not and wanted a civilian nuclear program to be customers. The changes that the group made were to allow a grandfathering process for those nations that had already started producing their own nuclear technologies but didn't already possess full fuel production technologies to quickly transition to supplier status without the other restrictions other customers had when moving towards supplier status.

After the now two groups finalized their proposals, a representative for each group presented their proposals to everyone. This was followed by a question and answer session so that each group could get further details on the other groups' proposal. This generated quite a bit more debate than had previously been seen in the game and really showed how successful this type of learning structure can be. When there were no more further questions, the proposals were put up for final vote and each delegation was given a chance to choose which proposal they supported. The vote was decided in favor of the plan presented by Iran, though the final vote was near a split with only a few swing votes required to change the outcome.

With the vote done, the game was now complete. We followed this up with an open question and answer session for the students, out of role, on anything they had a question on about the game each other, or each other's roles. This used up the rest of this final two hour session and the class for that day.

# **Analysis**

## ***Introduction***

The following is an analysis of the Pakistan Connection role playing game, targeting its effects on class room participants as well as the “pick-up and play” audience. Each of the students in the class were assigned to write in-character journals as a reflection of the game and, going forward, the findings of the game will be discussed, followed by what transpired. The Comprehensive Immersion Factor was created for the use of coding these notebooks, which measures the student’s comprehension and level of immersion in the game, based on what is found within their respective journals. Some students supplied out of character notebooks on their thoughts of the game and how it played out as well. Everyone involved in the game completed a questionnaire, which will be used as a point of analysis, but also the basis for the consensus of the current version of the game.

## ***The Comprehensive Immersion Factor***

The Comprehensive Immersion Factor metric takes into account measures for a participants level of Comprehension and Immersion in the Pakistan Connection game, dissected from their “in-character” notebooks. The grade scale is out of five points, based on six measures of varying weights. The results are a fair balance of subjective and objective analysis to give what is found to be the best indicator of whether or not what the students have taken out of the game and produced in the notebooks expresses the intent of the game’s design.



## **Immersion**

The Immersion Metric is based on the level of Character (C) detail put into the notebook—which is subjective and the value is based on the overall feeling and effort put into the notebook by the student to represent their given character and cultural habits—and is worth three points, the Game Details (GD) is based on information placed in the notebook regarding events that took place during the game and is worth four points, and the Targeted Viewpoint (TV) which is a value based on how the character expresses feelings and ideas based upon the other characters and events and is worth three points.

## **Comprehension**

The Comprehension Metric is comprised of a measure for Local Issues (LI) that touch upon aspects of the character's represented country and their issues relating to the game and is worth three points, Global Issues (GI) that touch upon issues involving other countries and their represented country relating to the game and is worth three points, and lastly the Vote Decision (VD) is worth four points and is based upon the overall reasoning of their character's decision in the final voting outcome that they chose and how this outcome helps their country and its goals.

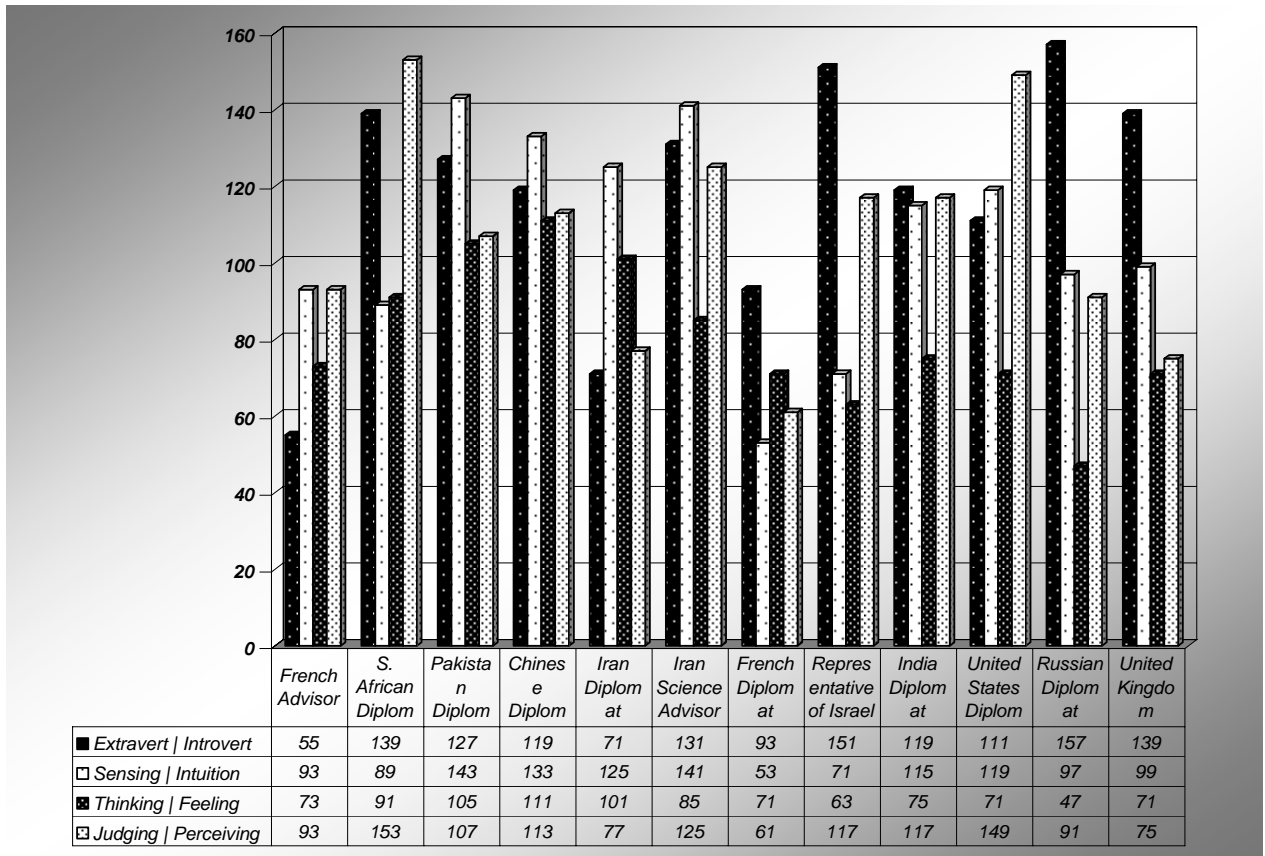
## **Comprehensive Immersion Factor (CIF) Formula**

$$\text{CIF} = (C + \text{GD} + \text{TV} + \text{LI} + \text{GI} + \text{VD}) / 4$$

## ***The Players***

The game was comprised of a varying group of individuals, with different styles and standpoints, each affecting the flow and ultimately the outcome of the game, as the

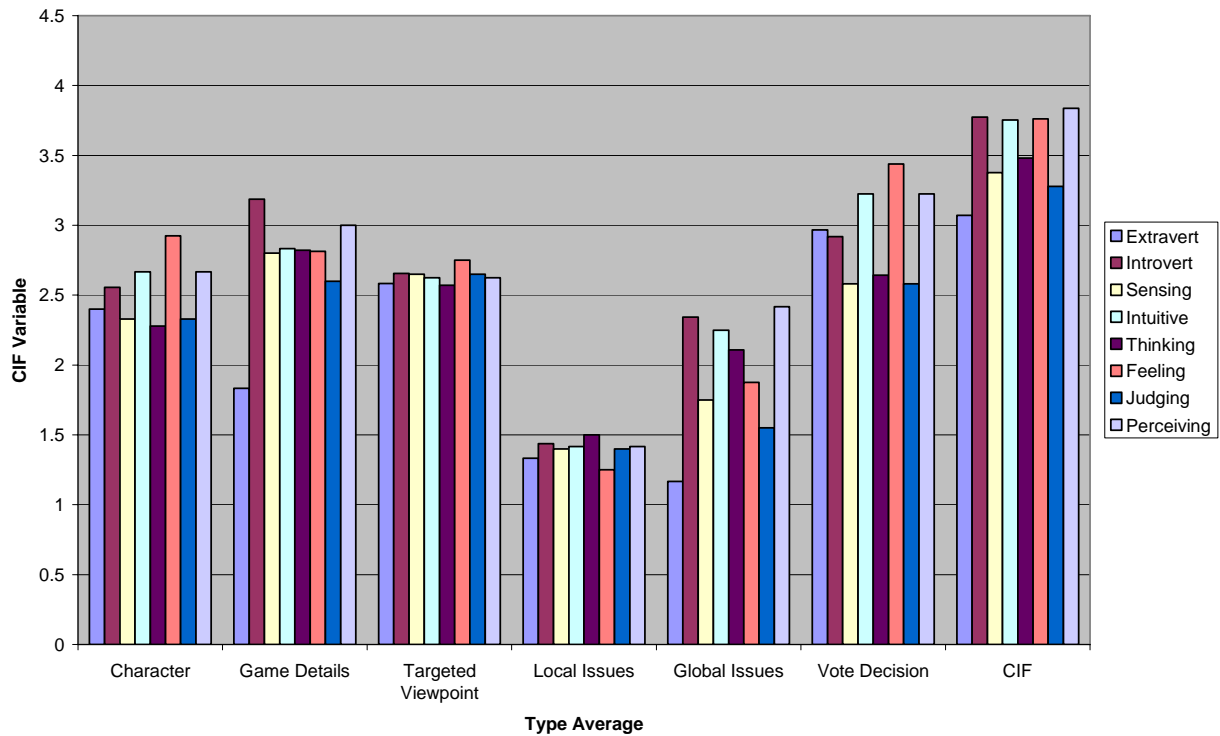
vote decision is completely out of the IAEA and Game Master’s hands. There were three professors involved; they were the dearth of knowledge throughout the game, as experience in not only live role-playing games, but lecture scenarios, as well as a great amount of study and interest in the game let them shine in their positions and standpoints. The night game was a course requirement and though the students were ultimately “forced” to be there, no one showed a lack of interest for the events besides one player who did not show up, though their role was covered and the absence was reflected in their notebook findings.



## ***In Character Notebook Findings***

Within the in-character notebooks lies an overall sense that the students in the class understood what was presented to them, the implications of nuclear dissemination, and presented some ideas to correct or better the situation. The majority of the class did a good or great job in conveying their character and intentions for the course of the game. An example that stood out was the diary for the Iranian Diplomat; it was written to Ayatollah Seyyed Ali Khamenei, sighting his course of actions throughout the game and the true intentions of Iran in trying to be allowed nuclear capabilities so that they may secretly enrich uranium to weapons grade. However, the notebook with the highest CIF rating came from a non-prominent role in the game, as the Iranian Science Advisor showed more descriptive content than any of the other notebooks, displaying a true understanding for the game, while barely speaking out during the actual run of the game.

CIF & MBTI Comparison



The students who participated in the class were comprised mostly of introverted individuals, which show the largest differential in the outcome of the CIF values shown in introverts and extraverts, compared to all of the other type differences. Those of the perceptive nature fielded the highest CIF results. The extraverts typically did not focus on the information given in the character sheets and news clippings prior to the game when writing in their notebooks, but focused mainly on details of the game. While not apparent in the data gathered from the notebooks alone, the game seemed to help the extraverts the most, as they had the highest averages for the course outcome.

The students were required to give what they assumed would be the thoughts of their respective characters, thus continuing to role-play or at least contemplate the mindset and mentality of their character for approximately five days after the conclusion

of the game. The average CIF value for the Character (C) variable displayed that all of the students had a good capacity to get in role and project their character accurately when confined to pen and paper. The students with a partiality to Feeling displayed, on average, a much higher ability to depict their character in their journals.

Conclusively, the journals found exactly what the game intends for them to find. It raised awareness of the issues of nuclear proliferation, the viewpoints of outside nations, and the fact that the IAEA is currently in a state that, no matter how much information is given to them; they are just a middle-man in the control of nuclear dissemination.

### ***Game Play Analysis***

The test run of the game was not likely the smoothest or most entertaining run it will ever see, however there is an astounding potential for it to be very engaging and extremely educational. As was described previously, the course is comprised of a three-fourths majority of introverts, thus breaking ground at the introduction of the game is very shaky, but over a short period of time the players become more immersed in their role. The “sit-in” players were well versed on the subjects and were more fluent in expressing their opinions in the opening statements as well as the debates. Typically, good public presentation comes from confidence not only in the information you discuss upon, but confidence in yourself, which was not the case for all players involved. It was this lack of knowledge and experience that led to some questionable movies by the in class participants that were noted by more experienced players within the class.

The class participants’ inexperience was made up for by a knowledgeable Game Master, who helped move topics along and adjust the flow, for what was for the majority

a first, of the Pakistan Connection game (which is not initially described in the game's documents). This is a key issue with regards to the pick-up and play audience, as it would not be advised to have at the very least one person who is informed enough on the topics of nuclear proliferation, though revisions to the initial version of the game will help ease that burden. The included character sheets help to guide the mindset and goal of each individual role, but unfortunately in the test run of the game there were quite a few supporting roles missing from the game, which will create a different dynamic and help ease game flow and topic transitions, as was seen with the few delegate groups who had the supporting back up of the science and military advisor positions.

### ***“Shopping for Bombs”***

There were a select group of students in the course chosen to read the novel “Shopping for Bombs” by Gordon Corera whom were analyzed based on their CIF, in class performance, as well as in game presentation and interaction. Four students were selected to read this book, two were introverts and two were extraverts.

### **Notebooks**

One expects that the “Shopping for Bombs” book would give those who read it a distinct advantage in the game, however, the findings of this analysis show that those who read the Bhopal book had on average a higher CIF score and higher final course average. This is not to say that “Shopping for Bombs” does not have its merits, it is suspected that a few of the students assigned to reading “Shopping for Bombs” did not actually read the book prior to the game, which would explain their results, as there were only four students assigned to read the book and there was only one poor CIF rating of

those four students (who was also the student who did not attend the night meeting), which lowered the average.

## **In-Game**

During the actual run of the game the undisputed star was one of the students assigned to read “Shopping for Bombs.” They had an edge in raising issues and situations that some of the other students were not aware of and used this knowledge to put their country in a position to get what they wanted. In the end, his proposal was the winner of the vote.

## **Grades**

Again, the results show that those who read “Shopping for Bombs” actually scored a lower grade point average than those who read the Bhopal book, however this is deceptive. These student’s midterms, which were not game or nuclear proliferation related had relatively lower scores than the rest of the class, while when it came to the final, two of the student’s grades jumped up by ten points, another by seven, and only one went down by five. The student’s grade who went down by five points was, again, the student who missed the night session of the game and is suspect of not actually having read the book.

## ***Out of Character Notebooks***

The students who were participants of the course were given the option of writing an “Out of Character” Notebook relating their personal thoughts to the thoughts of their in game characters, as well as including critiques of the game preparation contents, the run, and the result. In terms of the content held within the notebooks, the majority of the

writing was critical in nature, however, there were some bits left open for analysis. The majority stated that, though at first they were disinterested in the game and only doing it for a requirement, by the game's conclusion were more aware of global issues and reasoning behind other countries' diplomatic decisions and viewpoints. Another interesting note is that those with prior experience to live role playing noted each other's strategies that others within the class were not aware of. The stronger players and notebook writers also expressed their feelings that other players did not care enough about the game or their role, where some gave examples of possible ways to improve the game, which will be covered more in the critiques section of this paper.

## ***Questionnaire***

Towards the closing of the night session, each participant involved in the game was handed a questionnaire sheet [Appendix] regarding their feelings and findings of the game play. The questionnaire was designed in hopes of revealing three particular things:

- Is the game in its current state ready for dissemination into Student Pugwash?
- Is the game in its current state read for dissemination into a High School setting?
- Does the game carry any educational merit and in what way?

For analysis purposes, these questionnaires showed the intellectual state of the test group and how this relates to the in class actions and results. For the "sit-in" participants, the findings were much the same as the students involved. The majority of the participants responded that the game would work well in a high school setting, however in its current state it is not ready to be released. Most of the participants had no prior game playing experience, while only one of the students found the game moderately or highly engaging or fun. Most found the experience educational and as a group from the start of the game



to the closing moments found that they had a higher level of knowledge with regards to nuclear dissemination. Many comments were made in regards to errors in the character sheets, as to the players they were found to be in poor shape, while some mentioned game flow and student participation as a problem area.

## ***Conclusions***

With the numerical data and observations of the in game action, the conclusion is found that, for the purpose of a pick up and play game, the diplomatic role is better suited for extraverted, more outgoing individuals. While the introverted players still get something out of the game, this may not be readily apparent from strictly game play observations. The more soft spoken players are better suited for a science advisor or military advisor role. In an educational setting it is found that writing a notebook is a benefit for the more introverted students, especially when determining what they have taken out of the game. For the classroom it has been suggested by the more experienced players that notebooks be written prior to game play to allow students to get in the mindset of the character and play around with their personality. It is necessary that there be at least two strongly voiced and enthusiastic players in opposing roles to jumpstart the discussions, especially for a pick up and play setting where there may not be as much time to prep the game.

## **Critique**

In judging the effectiveness of the game, one has to take into account two separate audiences with disparate goals for what can be considered a successful run of the game—comprised of the pick-up and play and classroom audience.

### ***Problems & Solutions***

One overarching problem with a smooth run of the game is lack of game flow. Often times in our run, the players lacked focus and seemed unsure of their immediate goals. The existing game materials included a timetable, but we found it to be inadequate for the schedule we were under. To rectify this problem, it is recommended that a definite schedule should be determined well in advance of the actual game run. As included in the appendix, the game master for the run of the game decided that a timeline of events and subjects to be discussed would help the flow of the game and its progression. The run should be divided into blocks of time, with each block having a concrete goal in mind.

Because the success of the game weighs so heavily upon decisions made by the participants, it is crucial that they feel comfortable in their role and quickly slide into it when the game starts. It is suggested, therefore, that roles be assigned to matching personality types, as much as possible. For example, since the job of a diplomat is to speak, this role should be given to the more extraverted participants. By contrast, the job of an advisor is to inform in the background, so these roles can be more comfortably filled by the introverts. Additionally, in a situation with longer preparation time, added reading can be recommended to increase immersion in a role.

Since this game has an abundance of factual documents associated with it (e.g., the character sheets, the country reports, and a treaty or two), it runs the risk of these papers becoming out of date. Issues might become irrelevant, or new issues might arise. If well written, these papers could stay current for as many as five or ten years, but it is unlikely that they will stay accurate forever. To combat this problem, it may be necessary to make small edits to the country reports and character sheets; additionally, it may be beneficial to also distribute relevant current newspaper articles related to nuclear proliferation.

A significant problem to consider is that of the interest of the actual game players. For this, there is not a solution to be discussed, but only a warning of awareness. If a player lacking in interest is assigned to a predominant role in the game, it can lose flow and focus, as well as divert the immersion of other players. If there is a way to gauge the interest of the players prior to assigning roles or in respect to what roles they would best fit, please take the time to consider all given options.

## ***Recommendations***

### **Pick-up and Play**

With regards to the pick-up and play audience, several unique issues arise, which are not typical to an academic setting. These issues mostly stem from the lack of rigor and definitive authority that would exist in a class.

The prime issue is that this audience is faced with a lack of time to incorporate alternative methods to develop the start of the game action to the extent of which a classroom can. As a result, the game needs to start and move quickly. Thus, a plan must be in place prior to distribution of game materials in an attempt to plot out the course of the game, while still allowing flexibility in the development of game interplay. It is important to note, however, that strict adherence to this plan is unnecessary, and perhaps undesired. Another method to jump start the game is to assign the strongest players to opposing roles in hopes that a debate will be sparked immediately. If the game starts quickly, and people are in role and enthusiastic, it is preferable to follow the natural flow that the game is taking, rather than the plan.

An educated game master is considered a necessity in order for the game to progress smoothly. They act as a means for contact to the outside world, as well as answering any questions regarding the game's events and/or rules. At a minimum, the game master or one of the leading roles should read "Shopping for Bombs" by Gordon Corraera before the start of the game. If it all possible, it is a great benefit to have current event articles from the real world disseminated before the game to all participating

members as a means to supplement the knowledge base and heighten the experience for all involved.

As time is a limited commodity, it is possible to start the game somewhere in the middle. This can help jump start the game by having a chapter head or lead create a scenario in a meeting prior to the game that will dictate the course for the opening of the game and allow for play off of that. Thus avoiding the slowest and most time consuming portion of the game, the players are given a mindset and viewpoint to attack the game and their role.

## **Academic**

The other target audience involved in the creation of the game was that of the academic interest, carrying a different set of recommendations for game play. One has to analyze the fact that there are different types of people in the world, for this paper the Myers-Briggs Type Indicator was used to break down the participants in the test run, displaying varying results for varying types. In the setting of the live game, the extraverts and more outgoing students gain the advantage of the experience based purely on observational results. However, based on the findings of the Comprehensive Immersion Factor analysis, coupled with other resources covered in the Analysis section of this paper, the introverted students take a lot out of the game, though it may not be readily apparent.

A key recommendation, brought up by students of the class through their out of character notebooks, is that the players should write a journal in-character before and after the game in order to truly immerse themselves into their roles. This also gives a teacher the advantage of looking at the game from a point of view not given strictly by

game play. As it has been found, the game and journal writing process greatly benefits the introverted students where their in game performance would not shine through as an indicator of such. The extraverts will still be the star of the game, but the effects of the game's academic purpose can now be felt and quantified.