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15th Annual Governors State University Student Research Conference Proceedings

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PROCEEDINGS OF THE CONFERENCE

15th Annual

GSU Student Research Conference

GOVERNORS STATE UNIVERSITY

Wednesday
May 20, 2009
Sherman Recital Hall
9 a.m. – 5 p.m.

Editor:

Dr. Shelly Kumar

Division of Science

College of Arts and Sciences



**Proceedings of the
15th Annual GSU Student Research
Conference**

**Governors State University
University Park, IL 60466**

May 20, 2009

Editor:

**Dr. Shelly Kumar
Division of Science
College of Arts and Sciences**

PARTICIPANTS

Students of Governors State University

College of Arts and Sciences

College of Business and Public Administration

College of Education

College of Health and Human Services

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Dear Student Researcher:

Welcome to the Annual Governors State University Research Conference. We are proud of the excellence, expertise, and variety of your research presentations. Thank you for sharing your work with the GSU academic community.

A university education goes beyond the mastery of information to the creation of new knowledge. Congratulations to you and to your professors and advisers for participating in the joy of discovery. We are proud to count you as members of the GSU community.

Thank you for participating in this research conference and for what we hope will be a life-long commitment to new ideas.

Sincerely,


**Elaine P. Maimon, Ph.D.
President**

A MESSAGE FROM THE CONFERENCE STEERING COMMITTEE

The steering committee is pleased to announce the 15th Annual GSU Student Research Conference to be held on May 20, 2009. For the past twelve years this conference has become a tradition in excellence, and we are confident that today again we will witness another session of quality presentations by our students. This conference will be presented in its original format and with its original objectives:

1. To provide students an opportunity to present their research work before an audience of their peers, and to use the comments they receive to improve presentations made at professional conferences.
2. To provide a forum to highlight research accomplishments at GSU, and honor students presenting their research work.
3. To generate enthusiasm among the student body in general, and encourage them to pursue research and other scholarly activities.
4. To enhance communications in the area of research among the four colleges at GSU. The interactions may also lead to collaborative work among students and faculty of different colleges.
5. To enhance the image of GSU in the area of teaching, as research is considered an integral part of teaching at the university level. In the long run a larger number of students attracted to research would enroll at GSU to pursue higher education.

The committee hopes that you will enjoy the conference, that you share in the excitement of doing research, and that you will look forward to participating in future student and professional conferences.

KEYNOTE SPEAKER BIOGRAPHY

The Student Research Conference Steering Committee is proud to announce that the keynote speaker for the lunch will be:

Dr. Michael LaBarbera, Ph.D.

Professor
Department of Organismal Biology & Anatomy
and the Committee on Evolutionary Biology
University of Chicago, IL

Dr. Michael LaBarbera was born and raised in the Finger Lakes region of upstate New York. He did his undergraduate work at Cornell University and his graduate work at Duke University. He teaches biology and biomechanics at the University of Chicago, where he is a Professor in the Dept. of Organismal Biology & Anatomy and the Committee on Evolutionary Biology. Dr. LaBarbera is a Fellow of the American Association for the Advancement of Science, Associate Editor of *The Biological Bulletin*, and served on the Board of Reviewing Editors of *Science* for 11 years. He has been awarded the University of Chicago's Quantrell Award for excellence in undergraduate teaching. He is the author of 66 peer-reviewed publications focused on the biomechanics of living and fossil animals, primarily marine invertebrates, but he has published on everything from why animals don't have wheels and the mechanical properties of an aboriginal fishing line to the feeding biology of the long-necked Mesozoic marine reptile, *Dinocephalosaurus*, and the aerodynamics of flying snakes. He has lectured to non-scientist/general public audiences in over 30 U.S. cities and has appeared on several television and radio shows discussing biomechanics.

A BIOLOGIST GOES TO MOVIES

Michael Labarbera

Department of Organismal Biology & Anatomy
and the Committee on Evolutionary Biology
University of Chicago, IL

ABSTRACT

"Monster" movies might seem an unlikely venue for scientific analysis, but their subject matter prompts us to ask questions we probably would not otherwise address. Why aren't there giant ants and grasshoppers? What would the world be like for a human shrunk to the size of a mouse? Or to the size of a red blood cell? What would really happen if you dropped a sixty foot ape from the top of the Empire State Building? This presentation will explore biological diversity, both real and imagined, from neighborhood ponds to the silver screen. In the process explore some tidbits about these movies (and their protagonists) that even the producers didn't know.

PROGRAM SUMMARY

Sherman Recital Hall:

Conference Registration & Continental Breakfast

9:00 A.M. – 9:20 A.M.	Welcome and Introduction
9:20 A.M. – 10:40 A.M.	Podium Presentations
10:40 A.M. – 11:00 A.M.	Refreshment Break
11:00 A.M. – 12:00 Noon	Podium Presentations

Hall of Honors:

12:00 Noon – 12:15 P.M.	Certificates Presentation to Student Participants
12:15 P.M. – 1:00 P.M.	Lunch
1:00 P.M. – 2:00 P.M.	Keynote Address
2:00 P.M. – 2:30 P.M.	Poster Presentations
2:30 P.M. – 4:10 P.M.	Podium Presentations
4:10 P.M. – 4:15 P.M.	Concluding Remarks

CONFERENCE PROGRAM

Conference Registration & Continental Breakfast

8:30 A.M. Sherman Recital Hall

Program Commencement Sherman Recital Hall

9:00 A.M. **Welcome and Introduction:**
Dr. Shelly Kumar
College of Arts and Sciences

Greetings:
Dr. David Curtis, Acting Provost

Podium Presentations Sherman Recital Hall

Session I Moderator:
Dr. Akkanad Isaac
College of Business and Public Administration

9:20 A.M. CISPLATIN PHOTO-ANALOGS, Pt(dppz)Cl₂ AND Pt(bpy)Cl₂, AS POTENTIAL PHOTODYNAMIC THERAPEUTIC AGENTS, Srikanth R. Banda and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 14.

9:40 A.M. A DISTRICT'S UNDERSTANDING OF RESPONSE TO INTERVENTION (Rtl) AND ITS EFFECTIVENESS, Rachel L. Townley, Philip Boudreau*, and Maribeth Kasik*, Multicategorical Special Education, College of Education, p. 15.

10:00 A.M. AN OVERVIEW OF THE IMPACT THAT AN EPIDEMIC SCARE CAN HAVE ON THE GLOBAL ECONOMY, Josephine Stutsman¹, Sandeep Shetty², and Isaac Akkanad*, ¹International Business and ²Management Information Systems, College of Business and Business Administration, p. 16.

10:20 A.M. PHOTODYNAMIC THERAPY FOR SKIN CARCINOMAS, Priyanka Kotha, Rahul Khanke and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 17.

10:40 A.M. *Refreshment Break*

Session II Moderator:
Professor Cynthia Carr
College of Health and Human Services

- 11:00 A.M. CHICAGO RIDGE: A TOWN OF CHANGE, Kevin Zickterman and Frances Kostarelos*, Social Sciences, College of Arts and Sciences, p. 18,
- 11:20 A.M. RHODIUM AS PHOTODYNAMIC THERAPY AGENT, Varun Chander R. Lenkala and Patty K.-L.Fu*, Analytical Chemistry. College of Arts and Sciences, p. 19.
- 11:40 A.M. METHAMPHETAMINE & GAY MEN, Colleen Wray and Raven James*, Addictions Studies, College of Health and Human Services, p. 20.

Conference Lunch Hall of Honors

12:00 Noon. **Certificates Presentation**
Dr. Elaine Maimon, President

12:15 P.M. **Lunch**

1:00 P.M. **Keynote Speaker**

Dr. Michael Labarbera
Department of Organismal Biology & Anatomy
and the Committee on Evolutionary Biology
University of Chicago, IL

Speaking on with Multimedia Presentation:

A BIOLOGIST GOES TO MOVIES

Poster Presentations

Hall of Honors

2:00 P.M.

EXTRACTION OF CHEMICAL CONSTITUENTS OF CUMIN SEEDS AND STUDY OF THEIR ANTIBACTERIAL ACTIVITY, Divya Varadarajan, Aheda Saber*, and Timothy G'sell*, Analytical Chemistry, College of Arts and Sciences, p. 28.

ASPECTS OF GC/MS AND LC/MS ANALYSIS OF MELAMINE IN MILK AND MILK PRODUCTS, Ajaykumar Zalavadia and Joseph B. Addison*, Analytical Chemistry, College of Arts and Sciences, p. 29.

EXTRACTION OF CHEMICAL CONSTITUENTS OF TURMERIC AND STUDY OF ITS ANTI-MICROBIAL ACTIVITY, Bibi Javeria, Aheda Saber*, and Timothy G'sell*, Analytical Chemistry College of Arts and Sciences, p. 30.

EXTRACTION AND IDENTIFICATION OF THE CHEMICAL CONSTITUTIONS OF THYME (THYMUS VULGARIS) AND STUDYING THEIR ANTI-MICROBIAL ACTIVITY, Vidit Shah, Aheda Saber*, and Timothy G'sell*, Analytical Chemistry, College of Arts and Sciences, p. 31.

THE PHENOMENA OF OUR DISTRACTION, Catherine M. Ciosek and Beth Parin*, Independent Film & Digital Imaging, College of Arts and Sciences, p. 32.

CISPLATIN PHOTO-ANALOGS, Pt(dppz)Cl₂ AND Pt(bpy)Cl₂, AS POTENTIAL PHOTODYNAMIC THERAPEUTIC AGENTS, Srikanth R. Banda and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 14.

PHOTODYNAMIC THERAPY FOR SKIN CARCINOMAS, Priyanka Kotha, Rahul Khanke and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 17.

RHODIUM AS PHOTODYNAMIC THERAPY AGENT, Varun Chander R. Lenkala and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 19.

COMPARATIVE STUDY OF PHOTOCYTOTOXIC AND CYTOTOXIC EFFECTS OF PURE LAWSONE AND THE NATURAL HENNA EXTRACT, Amit Tanna and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 25.

Session III Moderator:

Dr. Maribeth Kasik
College of Education

- 2:30 P.M. **LEARNING DISABILITIES AND SOCIAL FUNCTIONING, Christine Henning, Philip Boudreau*, and Maribeth Kasik *, Multicategorical Special Education, College of Education, p. 21.**
- 2:50 P.M. **ECONOMIC DEVELOPMENT IN WINTHROP HARBOR – 1990-2008, Helen M. Smith and Francis Kostarelos*, Interdisciplinary Studies, SIDL, College of Arts and Sciences, p. 22.**
- 3:10 P.M. **AN OVERVIEW OF SUPPLY CHAIN INTELLIGENCE AND ITS APPLICATION, Sandeep Shetty and John Simon*, Management Information Systems, College of Business and Business Administration, p. 23.**
- 3:30 P.M. **COMPARATIVE STUDY OF PHOTOCYTOTOXIC AND CYTOTOXIC EFFECTS OF PURE LAWSONE AND THE NATURAL HENNA EXTRACT, Amit Tanna and Patty K.-L. Fu*, Analytical Chemistry, College of Arts and Sciences, p. 25.**
- 3:50 P.M. **THE EFFECTIVENESS OF POSITIVE BEHAVIOR INTERVENTION AND SUPPORT, Jennifer Griese, Maribeth Kasik*, Philip Boudreau*, Multicategorical Special Education, College of Education, p. 26.**
- 4:10 P.M. *Concluding Remarks*
Dr. Shelly Kumar

ABSTRACTS OF PODIUM PRESENTATIONS

May 20, 2009

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The authors with underlined names are the presenting authors. The authors with asterisks are the faculty sponsors.

Governors State University
University Park, Illinois

CISPLATIN PHOTO-ANALOGS, Pt(dppz)Cl₂ AND Pt(bpy)Cl₂, AS POTENTIAL PHOTODYNAMIC THERAPEUTIC AGENTS

Srikanth R. Banda and Patty K.-L. Fu*

Analytical Chemistry
College of Arts and Sciences

ABSTRACT

Square planar Pt(dppz)Cl₂ (dppz = dipyrido[3,2-a:2',3'-c]phenazine) with open DNA coordination site were synthesized and characterized. Its DNA binding and photocleavage properties are reported and compared to those of cisplatin, *cis*-Pt(NH₃)₂Cl₂, and the related complex Pt(bpy)Cl₂ (bpy = 2,2'-bipyridine). The hypochromicity of the absorption spectrum of Pt(dppz)Cl₂ observed upon addition of DNA is consistent with an intercalative binding mode, from which a DNA binding constant of $K_b = 4.0(8) \times 10^5 \text{ M}^{-1}$ was calculated. A similar binding constant, $7.6(7) \times 10^5 \text{ M}^{-1}$, was determined for the complex from equilibrium dialysis with DNA. Intercalation of the complex is also supported by the increase in DNA melting temperature and the relative viscosity of DNA solutions in the presence of Pt(dppz)Cl₂, which are not observed for cisplatin or Pt(bpy)Cl₂ under similar experimental conditions. Upon irradiation (lirr > 395 nm, 20 min) Pt(dppz)Cl₂ is able to photocleave plasmid DNA both in air and in the absence of oxygen, resulting in the nicked form. In contrast, cisplatin and Pt(bpy)Cl₂ are photochemically inactive towards DNA under these irradiation conditions. Photocleavage experiments in the absence of oxygen and in the presence of various scavengers show that the reactivity is oxygen-independent. Cytotoxicity and photocytotoxicity of all three compounds towards normal and cancerous human liver cells are measured and the LD₅₀ (lethal dose 50) is calculated for each compound. Concluding from the experimental data, Pt(dppz)Cl₂ is a nontoxic drug and can only be activated by irradiation with certain wavelengths of light. When it is photoactivated, it can produce highly reactive intermediates and ultimately lead to the selective death of cancerous liver cells without affecting normal liver cells. Therefore, Pt(dppz)Cl₂ is suitable as potential PDT agents and is ready for further testing *in vivo*.

Note: this work is presented in podium and poster formats.

**A DISTRICT'S UNDERSTANDING OF RESPONSE TO INTERVENTION (RTI)
AND ITS EFFECTIVENESS**

Rachel L. Townley, Philip Boudreau*, and Maribeth Kasik*

Multicategorical Special Education
College of Education

ABSTRACT

This practical action research study examined the effectiveness of Response to Intervention (RTI) in the Crete-Monee School District of Crete, Illinois. Teachers and administrators for grades K-6 within the school district were participants in this study. Data for this research was derived from an on-line questionnaire that was completed by the participants. A thorough history of the general and special education laws and definitions related to Response to Intervention (RTI), as well as other pertinent information, is included. Study implementation, including who the participants were, methodology, instrumentation, procedures, and data analysis are included as well. The results showed that while there is a lot of work to still be done with RTI in the district, and that there are many mixed interpretations of the process, the Crete-Monee School District is moving in a forward direction towards making all students successful.

AN OVERVIEW OF THE IMPACT THAT AN EPIDEMIC SCARE CAN HAVE ON THE GLOBAL ECONOMY

Josephine Stutsman¹, Sandeep Shetty², and Isaac Akkanad*

¹International Business and ²Management Information Systems
College of Business and Business Administration

ABSTRACT

Introduction:

U.S. is experiencing a recession due to a decline in GDP growth, a halt in businesses expanding, employment rate falling, and unemployment rates rising, and housing prices declining. The news headlines on Swine Flu (Influenza A H1N1) has caused a financial impact for the United States and throughout the world. We have included a few examples of how the U.S may be affected even more than it already has: (1) America's travel industry could lose a lot in a health crisis, (2) U.S. agriculture exports could suffer due to culling of herds, and some pharmaceutical companies could make out just fine. This Impact is not only taking place in the U.S but also impacting globally. Tourism industries in the U.S have already started responding to concerns about travel to Mexico. The real concern for the industry going forward is the fallout the flu scare could have on domestic travel, which accounts for almost 90 percent of total revenue. The pharmaceutical industries would be least affected. Many drug companies could benefit from an upswing in demand for vaccines if swine flu turns out to be a bigger problem than it already has been. Ultimately if swine flu does develop into a worldwide crisis of epidemic proportions, the current global economic recession will get much worse, and it will take a Herculean effort for world economies to recover.

Thesis:

A defining feature of globalization is an international industrial and financial business structure. Therefore an epidemic scare could hurt us globally as we are major suppliers of goods, both exports and imports to different parts of the world. Globalization has provided an easy path to a pandemic virus like the Swine flu to spread rapidly across the world, thus causing the economy to decline.

Conclusion:

In order to lessen the Global economic impact of epidemic scares, we need to maintain a strong relationship with other countries and should be able to communicate effectively. We are becoming more and more globalized and we need to prepare ourselves to counter these types of occurrences and lessen the impact that they may have on our global economy.

PHOTODYNAMIC THERAPY FOR SKIN CARCINOMAS

Priyanka Kotha, Rahul Khanke and Patty K.-L. Fu*

Analytical Chemistry
College of Arts and Sciences

ABSTRACT

Skin cancer is the most prevalent of all types of cancers. It is estimated that more than one million Americans develop skin cancer every year. Recently photodynamic therapy has received a great deal of attention owing to the ability of the technique to target tumor tissue selectively. Traditionally, radiotherapy and chemotherapy are the two major non-invasive techniques used for the treatment of cancer. Both methods can induce disabling and life threatening side effects, as they can destroy indiscriminately normal tissue as well as tumor tissue. Therefore, selective tumor destruction has become a major goal in oncology research. Photodynamic therapy (PDT) is a technique that uses the combination of light and nontoxic drugs to destroy specific targeted tumor cells. After the inactive, nontoxic drug is applied topically or injected, it localizes in tumor tissue and can only be activated by irradiation with certain wavelengths of light. When these photosensitive drugs are photo activated, they can produce highly reactive intermediates and ultimately lead to the selective death of cancerous cells without affecting normal tissue. Synthetic bimetallic dirhodium photo sensitizers $Rh_2(R\text{-form})_4$ ($R = p\text{-CF}_3, p\text{-Cl}, p\text{-CH}_3, m\text{-OCH}_3$; form = N,N'-diphenylformamidine), and $Rh_2(\text{tpgu})_4$ (tpgu = 1,2,3-triphenylguanidine) have been extensively investigated. Their molecular and electronic structure, bonding, reactivity, and the binding of nucleic acids have been well characterized and published. Cytotoxicity and photocytotoxicity of all five compounds towards normal and cancerous human skin cells have been measured and the LD_{50} (lethal dose 50) have been calculated for each compound. Concluding from the experimental data, these synthetic transition metal complexes are suitable as potential PDT agents and are ready for further testing *in vivo*.

Note: this work is presented in podium and poster formats.

CHICAGO RIDGE: A TOWN OF CHANGE

Kevin Zickterman and Frances Kostarelos*

Social Sciences
College of Arts and Sciences

ABSTRACT

The main body of this presentation and the most important conceptual tool used in this project was that of *place*. Through a series of specific photographs of the small village of Chicago Ridge, this project highlights the physical and especially *cultural landscape* of the area. Place is formed by the human and physical characteristics of an area that give it meaning, while the cultural landscape is composed of artifacts and forms constructed specifically by human activity, as presented in de Blij and Murphy (2003). This project documents the change through time in this landscape and forms a picture of what kind of *place* Chicago Ridge has become to its residents. Through exploiting the environment, building human structures, and constructing this cultural landscape on the physical land, inhabitants of the town have created institutions, businesses, and homes unique to the town. This visual essay gives direct insight into the kind of *place* Chicago Ridge has become through its structural and residential change.

Equally important was the utilization of *push* and *pull factors* of the town in which helped characterize the town and were documented both visually and statistically. *Push and pull factors* are basic human geographic concepts that are used to explain human migration and settlement to a particular *place*. Migration to Chicago Ridge has been a leading factor in its change before and throughout the 20th century. It has been essential to determine *why* people have migrated to Chicago Ridge as well as *what* people have migrated because it directly shapes this *place* with the kinds of institutions that are maintained, values that are expressed in architecture, and the economic conditions in which the town upholds. This project encapsulates this by presenting pictures of distinctive physical features, economic and cultural establishments and houses located in the village. Factors that have attracted or repelled migrants to the village have had a tremendous effect on its ethnographic make-up. This project takes a look at what kinds of people have and still do reside in the town, how they have altered its landscape, and overall what kind of *place* Chicago Ridge has transformed into. A variety of push and pull factors along with the cultural landscape displayed visually combine to give Chicago Ridge a unique sense of *place*.

RHODIUM AS PHOTODYNAMIC THERAPY AGENT

Varun Chander R. Lenkala and Patty K.-L.Fu*

Analytical Chemistry
College of Arts and Sciences

ABSTRACT

Agents that bind and damage DNA have been widely utilized in cancer treatment; however, their toxicity towards normal tissue limits their usefulness. One possible strategy for circumventing this problem is the activation of tumors with visible/near IR light, thus making an otherwise nontoxic compound lethal to cancerous cells. Photofrin, a mixture of hematoporphyrin and hematoporphyrin derivatives, was approved for the photodynamic treatment of esophagus and lung cancer. In Photofrin, related porphyrin and phthalocyanin systems, energy transfer from the long lived $\pi-\pi^*$ excited state of the sensitizer results in the production of 1O_2 , which is believed to be the reactive species that ultimately results in tumor cell death. The requirement of oxygen for their photocytotoxicity presents a grave disadvantage for these systems, since some of the most aggressive and drug resistant malignant cancerous cells are hypoxic. Therefore, the explorations of photoactive molecules that do not utilize oxygen to effect cell death upon irradiation are desirable as potential photo chemotherapeutics.

A variety of Rh(III) complexes possessing 9,10-phenanthrenequinone diimine (phi) ligands in their coordination sphere have been investigated extensively as DNA photo nucleases in vitro. It is believed that much of the reactivity of these complexes arises from an excited state that is mostly centered on the phi ligand(s) with a life time of ~ 200 ns. Owing to the low molar absorptivity of the complexes in the visible region, direct photo cleavage of duplex DNA by these complexes, such as $[Rh(phi)_2phen]^{3+}$ and $[Rh(phen)_2phi]^{3+}$, requires irradiation in the near UV region.

Although the observation of DNA photo cleavage in vitro makes these systems good candidates for further investigation, it does not provide any information on whether the compounds would enter cells in vivo, cause cellular damage or death, or be able to penetrate the nucleus DNA photo cleavage. In the present study we explore the DNA photo cleavage, cytotoxicity, photocytotoxicity, and nuclear DNA damage by the quinone diimine complex $[Zn(bqdi)(H_2O)_2]^{2+}$ (bqdi= 1,2-benzoquinone diimine) and was recently shown to possess an emissive, pH dependent ligand centered excited state.

Note: this work is presented in podium and poster formats.

METHAMPHETAMINE & GAY MEN

Colleen Wray and Raven James*

Addictions Studies
College of Health and Human Services

ABSTRACT

Methamphetamine (meth), also known as crystal meth, crank red neck cocaine and many others, is a stimulant drug that is relatively easy to make from household items. The public perception is that this is a new drug; however, it is the roller coaster of illicit drugs coming in and out of fashion over the last approximate 100 years. It's impossible to point to a single factor explaining why it falls in and out of fashion (Sanello, 2005). In this power point presentation a brief history of the drug will be given, how it is most commonly used, the long and short term effects on the user, who is most vulnerable to the addiction, especially gay men who are six times as likely to develop a meth problem, and finally the current treatments for meth addiction.

The significance of research in this area is important for many reasons; 2/3 of all new HIV infected gay men attributed meth use as a factor in contracting the disease, meth destroys CD4T cells in those already infected, meth addicts have the lowest recovery rate of any addiction, and much of the damage done by meth to the user is permanent.

This is a serious issue not only for those in the addictions field but for anyone whose lives are touched by addiction. Because the addiction to meth is powerful and recovery rates so low, prevention programs targeted to gay men may be more effective than treatment. Finding better treatments options to target this particular addiction needs to be on going.

LEARNING DISABILITIES AND SOCIAL FUNCTIONING

Christine Henning, Philip Boudreau*, and Maribeth Kasik *

Multicategorical Special Education
College of Education

ABSTRACT

Previous studies suggest that non-disabled elementary-aged students hold negative attitudes towards their peers with disabilities. It has also been noted that peers without disabilities treat their peers with disabilities negatively in mainstreamed classrooms. The literature on the social functioning of students with learning disabilities (LD) has indicated that whereas a minority belong to peer groups, a higher proportion are isolated and most have lower social status among peers in general than their typically achieving classmates (Estell et.al., 2008). This study examines how the social skills of mainstreamed leaning disabled students affect their accessibility of the general curriculum.

ECONOMIC DEVELOPMENT IN WINTHROP HARBOR – 1990-2008

Helen M. Smith and Francis Kostarelos*

Interdisciplinary Studies
SIDL, College of Arts and Sciences

ABSTRACT

Welcome to the Village of Winthrop Harbor, “The Cornerstone of Illinois”. Originally settled in 1835, Winthrop Harbor is what realtors call a “bedroom community”, with a population of approximately 8,000. It is located at the Wisconsin border and the shores of Lake Michigan, midway between Chicago, IL and Milwaukee, WI. It has direct access to Chicago by Metra commuter trains and Interstate Highway 94 goes to both Chicago and Milwaukee. Although Winthrop Harbor is strategically located and has great residential and commercial potential, since 1990, Winthrop Harbor has experienced an economic stagnation that has been difficult to recover from.

The analytic tools used for this research include migration, both voluntary and forced, and the push/pull factors associated with migration. Elements of economic development such as, urbanization, and commercialization are also used. This research looks at how past voluntary migrations after WWII, the Korean War and the larger Baby Boom Era allowed a steady population growth and a surge of economic development in Winthrop Harbor. Pull factors in the region created a means of gainful employment and the population in the village continued to grow. This growth created the need to urbanize prime farm areas within Winthrop Harbor. Research reveals that a recent forced migration by the IL. State Dept. of Natural Resources, starting in 1989, has negatively impacted Winthrop Harbor’s population growth and economic stability. Despite the efforts of Village leaders to bolster Winthrop Harbor’s economy through commercialization, the Village still struggles with economic dislocation and stagnation. Plans have been made to further commercialize and beautify the Village’s Central Business District (CBD). These plans are an effort, by the Village leaders, to draw in tourism and offer residents and tourists a sense of place. Currently, these plans are on hold due to the current volatile political climate of the State of Illinois. Included with this research is a visual essay depicting Winthrop Harbor’s cultural landscape, its current CBD and the lakefront marina.

Because of its location on Lake Michigan and its proximity between two major Midwestern cities, Winthrop Harbor is a community that has the potential for economic stability and growth. Today, the village is ready to implement a plan to commercialize and beautify the Central Business District. Planners feel that improvements to its CBD would give residents and visitors a sense of place. The only thing holding the Village back at this point, is the State of Illinois.

AN OVERVIEW OF SUPPLY CHAIN INTELLIGENCE AND ITS APPLICATION

Sandeep Shetty and John Simon*

Management Information Systems
College of Business and Business Administration

ABSTRACT

Introduction:

Business Intelligence: It refers to technologies, applications and practices for the collection, analysis, and presentation of business information and also sometimes to the information itself. The purpose of business intelligence is to support better business decision making.

Supply Chain Management: It refers to the process of planning, implementing and controlling the operations of the supply chain as efficiently as possible. Supply Chain Management (SCM) spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption.

Supply Chain Intelligence = Business Intelligence + Supply Chain Management

Supply Chain Intelligence: Supply Chain Intelligence (SCI) is a discipline that leverages both internal and external Enterprise resource planning (ERP) and Supply Chain Management (SCM).

Thesis:

Supply Chain Intelligence is the new manufacturing paradigm (after Supply Chain Management). Operations Management made internal operations efficient; Supply Chain Management made supply chain operations efficient. Supply Chain Intelligence offers to understand supply chain operations to yield higher profits.

Through automation, supply chain management (SCM) has enabled companies to radically accelerate many of the manual processes and information flows - purchase orders, invoices, inventory counts, and so forth. But that also means that SCM can enable us to bad processes faster. The key is not just to do things faster, but to do them smarter. That means knowing whether you're winning new business, lowering total costs and achieving competitive advantage.

Supply Chain Intelligence is the way to address numerous supply chain challenges that persist in most enterprises today. Supply Chain Management certainly addresses many key concerns for manufacturers, but it also raises other challenges. Supply Chain Intelligence is fundamentally a predictive discipline that helps planners foresee events and anticipate trends. Predictive and analytical modeling techniques, along with

optimization, are at the core of supply chain intelligence. Improving the accuracy of demand forecasts by even a small percentage can create an exponentially greater beneficial ripple throughout the supply chain. That translates into fewer stock-outs and less excess inventory, for example.

Conclusion:

Supply Chain Intelligence is the wave of the future and helps in the better management of the Supply chain. Many ERP firms are buying BI firms and the number is expected to rise.

COMPARATIVE STUDY OF PHOTOCYTOTOXIC AND CYTOTOXIC EFFECTS OF PURE LAWSONE AND THE NATURAL HENNA EXTRACT

Amit Tanna and Patty K.-L. Fu*

Analytical Chemistry
College of Arts and Sciences

ABSTRACT

2-Hydroxy-1,4-naphthoquinone (Lawsone) is the main ingredient found in henna (*Lawsonia inermis* L.), an herb which has excellent dyeing properties used traditionally for centuries in Asia. Nowadays, Lawsone is available worldwide as a major ingredient in many hair dyes and hair-care products. Previous studies on the toxicity of lawsone have had conflicting results. It has been reported that 2-hydroxy-1, 4-naphthoquinone is a photo sensitizer and it would release superoxide anion, hydrogen peroxide and hydroxyl radical under the irradiation. However, some researcher have argued that natural henna leaves did not show any toxic effects, whereas marketed henna products were shown mutagenicity and genotoxicity effects.

This research project is intended to clear the confusion of previous published studies. We are able to find high binding constant of Lawsone with CT DNA as $3.05 \times 10^4 \text{ M}^{-1}$ at 470 nm wavelength. Moreover data from the fluorescence study of the Lawsone with CT DNA describes there is an energy transfer from DNA to the chemical moiety and by this mechanism it is intercalated the DNA. For the first time, comparison of the photocytotoxicity and cytotoxicity effects of Lawsone and the natural henna extract on the human skin as well as photo cleavage study of DNA will be conducted. This project is a collaborating effort between Governors State University and the United State Food and Drug Administration.

Note: this work is presented in podium and poster formats.

THE EFFECTIVENESS OF POSITIVE BEHAVIOR INTERVENTIONS AND SUPPORT

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Multi-Categorical Special Education
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ABSTRACT

Due to problem behaviors increasing in school settings, it becomes imperative that schools find an effective approach to decrease negative behavior (Warren et al., 2006). A quasi-experimental study with a modified time-series design was used to determine whether Positive Behavior Intervention and Support (PBIS) programs are an effective way to decrease negative behavior in three categories. The participant for the investigation was a middle school in Park Forest, Illinois. A paired *t*-test was conducted to evaluate the question of whether PBIS is an effective way to decrease negative behavior. The test was significant $t(681) = 2.97, p = .03$, which showed that PBIS did, in fact, decrease student referrals after PBIS was fully implemented. Implications are further discussed in the paper.

ABSTRACTS OF POSTER PRESENTATIONS

May 20, 2009

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Governors State University
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EXTRACTION OF CHEMICAL CONSTITUENTS OF CUMIN SEEDS AND STUDY OF THEIR ANTIBACTERIAL ACTIVITY

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ABSTRACT

Cumin (*Cuminum cyminum*) is a flowering plant in the family Apiaceae, native from the east Mediterranean to East India. Indonesians call it jintan. It is an herbaceous annual plant. Cumin seeds are refluxed in soxhlet apparatus with non polar and polar solvent to extract the volatile oil in the sample. The extracted component is analyzed using TLC and column chromatography and GC, GC/MS, HPLC to determine the different components of cumin. The extracts are also tested for their anti-microbial activity in comparison to other common antibiotic agents.

ASPECTS OF GC/MS AND LC/MS ANALYSIS OF MELAMINE IN MILK AND MILK PRODUCTS

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ABSTRACT

Recently, there have been incidents where food manufacturers or suppliers in china have added melamine to food or feed in order to deceive quality control analysis by proving high protein content. FDA determined the widespread toxic effects of melamine resulted in pet illness, death or both. It became even more serious when they found that wide spread illness in Chinese infants was attributed to melamine-tainted infant formula.

A simple, rapid, sensitive and robust method is essential for the quantitative analysis of melamine in milk, milk powder and pet foods. Several methods have been established by leading Analytical Solution Providers. All of the methods that have been suggested are complex and required either one or combination of the following steps: Solid Phase Extraction, Use of HILIC column, Acidified Mobile Phase and Multi reaction monitoring.

Extraction of melamine from raw milk using mixture of acetonitrile and water (50:50) as a simplest method that includes centrifugation at 4000 rpm for 10 minutes followed by filtration using 0.45 μ m PTFE syringe filter, the recovery was found to be 75%. Slight modifications with this method may result in recovery > 90%, which is sufficient enough to detect melamine at minimum allowed level by FDA (1 ppm). Further studies in the project work includes quantitative analysis of melamine in raw milk and milk powder by simple extraction and easy sample preparation followed by Chemical ionization on GC/MS/MS and trace level detection of melamine by selected ion monitoring using LC/MSD-Trap with HILIC column and negative ion scan mode.

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EXTRACTION OF CHEMICAL CONSTITUENTS OF TURMERIC AND STUDY OF ITS ANTI-MICROBIAL ACTIVITY

Bibi Javeria, Aheda Saber*, and Timothy G'sell*

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College of Arts and Sciences

ABSTRACT

Turmeric (*curcuma longa*) is a rhizome of perennial plant of the ginger family, Zingiberaceae. It is native to tropical south Asia. Turmeric is extensively used in Indian cuisine as spice and coloring agent. It is also used traditionally for medicinal purposes. Powdered turmeric is extracted by soxhlation and shaker method using a polar solvent. The turmeric extract is analyzed using TLC, column chromatography, GC, GC/MS, and HPLC to determine the different chemical constituents and their molecular weights. The anti-microbial activity of turmeric extract is tested against a variety of microorganisms in comparisons with some of the commonly used antibiotics.

EXTRACTION AND IDENTIFICATION OF THE CHEMICAL CONSTITUTIONS OF THYME (THYMUS VULGARIS) AND STUDYING THEIR ANTI-MICROBIAL ACTIVITY

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College of Arts and Sciences

ABSTRACT

Thymus Vulgaris also called commonly as Garden Thyme is an evergreen shrub which is in leaf all year and in flower from June to August. Oil of Thyme is the important commercial product obtained by distillation of the fresh leaves and flowering tops of *T. vulgaris*. Its chief constituents are from 20 to 25 per cent of the phenols Thymol and Carvacrol.

Using the soxhlet apparatus, both polar and non-polar extracts of Thyme are obtained using Ethanol and Hexane respectively. The extracts are analysed using GC, GCMS and LCMS after separating the components using TLC and Column Chromatography. Along with this the antimicrobial activity of Thyme is also determined. This is done by comparing the activity of the thyme sample and also the standard with other commonly available antimicrobial agents. The method we are using here is Kirby-Bauer Method. Also I will be trying to find out the effect of stomach secretion on the phytochemicals that we have in thyme. We will be stimulating the reactions in the stomach to see what is the effect on free radicals that we have in the thyme.

THE PHENOMENA OF OUR DISTRACTION

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Independent Film & Digital Imaging
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ABSTRACT

What is the true function of life? Are there symbols in our reality? Do the objects, which surround us function toward a universal goal, or do they simply relate to a cultural, material purpose? Is there a natural realm that precedes our mental realm, and if so, is there a difference between them?

The way we perceive life is a phenomenon, this phenomenon is perceived through a person's senses or mind. The objects of our everyday lives act as distractions, thus our experience with them is a phenomenon separate from our experience of life.

The objects are merely a representative of what is real, but the truth is informal and lies underneath the surface. Are these objects in our lives acting as the main character and we are simply the audience? Or are these objects a distraction to achieving our true goal? But how do we begin to understand what the main function of life is based on the material realm? We must look beyond ourselves to achieve our goals. But how do we direct our actions away from the material world when it surrounds our every move and our very being, for we are material based?

This is the intention, which I wish to explore, to discover the phenomena we call reality and how we should relate to it.

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NOTES

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