
Investigating an Intervention Program Linking Writing and Vocabulary Development for Homeless Children

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Abstract: The presented study investigated the effects of a four-week academic and activity – enriched summer program on vocabulary development and writing achievement of homeless children residing in traditional shelter facilities. When compared to controls, the experimental students did not reveal gains in vocabulary and spelling as measured by two norm referenced tests. They did however demonstrate highly significant gains in writing ability based on the New York State standards criteria, reflecting five qualities of writing. On two project-developed instruments designed to measure improvement in book vocabulary and tennis skills, they showed significant increases based on analyses of their pre- and posttest scores. The program closed achievement gaps, fulfilled standards criteria, and may be the first of its kind in the homeless literature whereby students' writing development was compared to matched controls as vocabulary development occurred based on literary readings.

Introduction

Children living in our cities' transitional shelter facilities experience major disruptions in their academic lives and are characterized as homeless due to residence instability (Mahwinney-Rhoads & Stahler, 2006). While poverty, residence relocation, and parent's lack of education are the major conditions leading to homelessness (Books, 2004; Keogh, Halpenny, & Gilligan, 2006; Swick, 1999), families enter the shelter system due to the many contributing factors of parental loss of employment and public benefits, formal and informal eviction, domestic violence, instability of family life, health-related problems, substance abuse, and family death (Smith, Floares, Lin & Markovic, 2005). Each year just over 50% of the homeless NYC children transfer to a new school with just over 20% of that group transferring twice and 16% transferring three times or more (Nunez, 2004; Sanlly, 2004).

This cycle of instability of residence, movement, and accompanying school absenteeism triggers haphazard schooling conditions for homeless children, placing them at risk for learning and literacy success. They face new school administrative climates, new teachers with new expectations, new peer groups who are often unsympathetic to their conditions, and new entry points in the various school curricula (Anooshian, 2003; Gibbs, 2004; Vissing, 2003). They may enter content topics without the requisite background knowledge and the accompanying vocabulary necessary to understand particular topics. Catching up becomes especially difficult without consistency in curriculum offerings and coordinated approaches to achieve standards' benchmarks. In New York City alone, homeless children perform well below reading and math, about 25 percent repeat a grade, and many are unnecessarily placed in special education classes (Institute for Children and Poverty, 2003).

Review of the Literature

A literature review reveals a research gap addressing specific interventions designed to improve academic performance for homeless children. This gap is most noticeable during the out-of-school-time of summer in light of the compelling evidence of summer academic loss for disadvantaged students. Throughout the homeless children literature, social isolation, rejection, school indifference, and peer victimization have been a common thread (Anooshian, 2003; Gibbs, 2004; Mawhinney-Rhoads & Stahler, 2006; Swick, 1999; Vissing, 2003). Using a case study approach, Mawhinney-Rhoads and Stahler (2006) investigated the first modified comprehensive school approach established in the nation for homeless children. While the authors conducted site visits, examined school materials and documents, made observations, and informally interviewed teachers and staff, no data was provided relative to student outcomes or achievement. In the description of an alternative school for homeless adolescents in Victoria, Texas, Gibbs (2004) discussed how flexible daily scheduling and a career oriented approach assisted some youngsters in a highly positive way. However, once again, apart from individual case study accounts, no data was provided relative to the larger population of 200 students and 10 teachers.

Research has documented that during the months of June through August, disadvantaged and poverty-level children lose academic and learning gains when compared to their more economically advantaged peers (Alexander, Entwisle, & Olson, 2001; Allington & McGill-Franzen, 2003; Borman & Boulay, 2004; Bracey, 2002). In a research syntheses of 39 studies, Cooper, Nye, Charlton, Lindsay and Greenhouse (1996) found that during the summer months a loss of about three months occurred in reading and language achievement between low and middle-class students. Comprehension and reading recognition scores declined more for low-income students while reading recognition scores showed a significant gain for advantaged students. These researchers theorized that the gain in the learning of new words for middle-class students was due to the influence of home and community environments which provided opportunities to learn new words. In a second line of research Kim (2004) found that the reading of four or five books during the summer had a potentially large enough effect to prevent reading achievement loss from Spring to Fall. With a potentially disjointed school year, summer academic declines may be even greater for a homeless children population.

Additionally, all children in New York State have to meet the requirements of the English Language Arts (ELA) Standards and Assessments for fourth and eighth grades as well as the state technology standards. The standards require that students

- 1) engage in wide and varied readings;

- 2) produce written papers and computer projects about issues of topics in which they had to produce evidence of understandings; and
- 3) create a multi-media computer project in which they had to write, format, gather, and organize information (Board of Education of the City of New York, 1997, 2001).

The integrated reading/writing act of the ELA assessments was evaluated through the use of the State rubric criteria. The scoring ranged from a Level 1 meaning "inadequate writing", Level 2 indicating "below acceptable writing standards," Level 3 revealing "acceptable standards for writing," to a Level 4 described as being "advanced writing proficiency." Over the four-year period from 2005 to 2008, 41% of 4th graders and 61% of New York City 8th graders achieved below the 3.0 writing proficiency benchmark.

Research has demonstrated that children with and without learning problems have improved in reading comprehension and planning for writing when they have been shown how text ideas are organized in narrative and expository readings and when they have been provided with visual models of text organization (Davis, 1994; Swanson & DeLaPaz, 1998; Vallecorsa & de Bettencourt, 1997; Wong, 1997). Providing writers with visual frameworks of text organization gives them a framework for producing, organizing, and editing compositions and has had a positive influence on report writing (Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Guastello, Beasley, & Sinatra, 2000). Moreover, instruction in writing improves reading comprehension, especially when writing occurs in unison with reading (Biancorosa & Snow, 2006). Many of the studies in the literature also reported positive effects of concept map use for vocabulary and reading comprehension development when small groups of children and youth were taught in controlled settings (Bos & Anders, 1990; Boyle, 1996; Englert & Marriage 1991).

While disadvantaged children involved in summer programs need academic reinforcement to boost summer learning, they also need to engage in other activities that they ordinarily would not experience in their home and community environments, such as activities that require physical exertion, learning of rules, changing of roles, and development by coaches and mentors (Entwisle, Alexander, & Olson, 2001). Others note that the best programs should include a wide range of options, provide hands-on activities related to a thematic interest, and have an academic focus aligned with work connected to the classroom (Pardini, 2001). In an analysis of seven studies of out-of-school time programs Chaput (2004) found that participation in a variety of offerings was associated with more beneficial outcomes in academic achievement, literacy gains, and decreased drug involvement.

The present study, conducted with homeless children residing in traditional shelter facilities operated by the New York City Department of Homeless Services (DHS), investigated the effects of an academic and activity – enriched summer program on vocabulary development and writing achievement.

Methods

Participants

Experimental students participating in the summer intervention program came from nine DHS transitional facilities located in Brooklyn and Queens, New York. Control students were located at five additional DHS Brooklyn facilities.

The 81 students of the experimental group who attended with some regularity were composed of 34 males and 47 females ranging in age from nine to 14 years with most falling between the

10 and 13 year-old levels. Initially 211 students from the nine facilities expressed an interest in attending the program. Due to requirements of the Department of Education regarding mandatory summer school to avert grade retention, many students were not able to attend. Ninety-four students did begin the program. However, by the end of the first week 13 students dropped primarily due to an inability to adjust to program requirements, e.g., four period structure with different task requirements. Almost all of the experimental students were Black and Hispanic with one Asian and three Caucasian participants. They had just completed grades three through eight with most completing 5th through 7th grades. Twenty percent reported that they were Special Education students and 25 percent indicated they had repeated a grade.

The 35 control group students had completed grades three through nine with most at the 5th and 6th grade levels. Sixteen were male and 19 female with all but one (Asian) Black and Hispanic. They ranged in age from nine to 15 with one third at the 12 year-old-age level. Seventeen percent noted that they were Special Education students and 30 percent reported they had repeated a grade. Like the experimental students, many more controls (149 total) initially indicated an interest in participating but due to factors of mandatory summer school, residence relocation, and opportunity to engage in other programs, they did not.

Staff

Experimental students were served by a staff of 32 adults composed of full time St. John's University personnel, alumni, graduate and undergraduate students. Lead teachers of each program component were either New York Certified teachers or specialists in their fields. For instance, tennis instruction was provided by a Division I Tennis Coach and his team players; leadership training was conducted by a Major and his staff of the Military Service Department and by the Director and her staff of the university's Student Leadership Department; and chemistry and biology laboratory experiments were taught by four graduate students of their respective departments. Undergraduate students generally served as teacher assistants in many of the program components.

Measures

Both, the experimental and control subjects were tested on the following instruments:

- the Spelling subtest of the Wide Range Achievement Test 4 (WRAT-4),
- the Vocabulary subtest of the Stanford Diagnostic Reading Test 4 (SDRT 4),
- the Book Vocabulary Test (BVT), and
- the Writing Task (WT).

The experimental group subjects were tested at St. John's University and the control subjects were tested at their various shelter sites.

Since spelling has been demonstrated to have an important connection to writing (Hammill & Larsen, 2009; Hofler, Erford & Amoriell, 2001; Mather & Woodcock, 1997), the Spelling subtest of the WRAT-4 (Wilkinson & Robertson, 2006) was included in the assessment to evaluate the subject's ability to encode dictated words. It was hypothesized that subjects' spelling performance would increase as a result of the intensive writing activity occurring in both the literacy classrooms and computer lab.

The increase or decline in a student's vocabulary during the months of summer has been directly related to the opportunities to learn new words (Cooper et al., 1996). The two vocabulary measures, SDRT 4 (Karlsen & Gardner, 1996) and the BVT, a project developed test

of target words from students' literary readings, were included to assess differences that could result from the daily use of new vocabulary in each of the program components and from the integrated reading and writing activities of the literacy classroom. It was hypothesized that the experimental group would be stronger in vocabulary than the controls.

The student's overall writing ability was evaluated through a combined rubric from the *New York State Testing Program English Language Arts Rubric for Reading/Writing* (2000) and the *New York State Testing Program Writing Mechanics Rubric* (2000). The writing mechanics section was added to four sections of the reading/writing rubric to make five components or qualities of writing evaluation: meaning, development, organization, language use, and mechanics. Each area was evaluated using the rubric ranging from 1 (inadequate) to 4 (advanced). During the pre-WT students wrote about a favorite experience they had during the previous year. At the post-WT students were asked to write about a favorite experience they had during the summer vacation or during their lifetime. It was hypothesized that the overall writing ability of the experimental group would be significantly greater than that of controls.

The experimental group was pre- and posttested on the first and last days of tennis instruction. It was hypothesized that the posttest evaluation would be significantly better than the pretest performance. Students participated in 10 trials of tennis strokes. During forehand and backhand, instructors bounced a ball to be returned to the opposite side of the net. At volley, students needed to return the tossed ball to the instructor. Finally experimental students were asked to evaluate the program by responding in writing to open-ended questions.

Procedures

Program Preparation: A number of meetings were held with DHS central staff and facility site directors regarding program goals and offerings. Parents from the experimental group facilities attended an orientation day and a campus tour. Schedules for pre and post testing of control group students at their respective sites were established by DHS central staff.

Training sessions also occurred for the staff, and groups met to establish an integrated thematic focus. For instance the three literary teachers integrated their thematic book readings with Kidspiration2® projects established by the computer teacher, and staff such as the military personnel used mature vocabulary words, such as *trust, courage, responsible, integrity, respect,* and *loyalty* to support one of the program themes.

During this phase, reliability and validity procedures were established as well. Because papers were written by both experimental and control students to be scored by the New York State Rubric system, two trained raters, not affiliated with the project, were engaged to score the project student's pre and post papers. Prior to the project, these raters were given 25 papers written on the topic of telling about a favorite experience by students from the upper elementary to the junior high grades. After rating the papers separately and achieving an interrater reliability coefficient of .634, additional training and calibration sessions occurred until a coefficient of .845 was established between the two raters. A rating of .91 was established during the project with papers from both experimental and control students.

Prior to project implementation, the three literary teachers were asked to target predictable new vocabulary words from each of the eight books students would read. From a list of 69 words, 30 were selected to be used on the Book Vocabulary test. The words were judged to be "tier two" level words (Beck, McKeown, & Kucan, 2002; Grover, 2006). Such words as *brilliant,*

postpone, announce, hesitate, supervise, submit, and sort are found in more mature reading materials rather than in initial reading offerings, are used in the oral language of mature speakers, and are of high utility of usage across content subjects. The test, modeled after the SDRT4 vocabulary battery with a stem containing the book word, a synonym phrase providing meaning, and three distracter words or phrases, was then given to seven licensed literary teachers for review and establishment of content validity. After their recommendation of five changes, the test was used for pre and post testing purposes.

Program Components: The control group students participated in daily activities at their respective facility sites. They attended nearby Boys and Girls Clubs or the facility game rooms to engage in recreational-type activities, and they were often bused on day trips to local amusement and recreational parks. These students did not have to attend mandatory summer school or remedial classes and were not exposed to a daily schedule of dedicated curriculum offerings.

Experimental students had a Monday to Friday schedule for a four-week period. Their day focused on academic and enrichment offerings and was broken down into four 75 minute curriculum periods with lunch (provided by the New York City Department of Education) midday at 45 minutes. By age, students were formed into four groups of roughly 20 students each. Groups remained intact through the project so that collegiability and teamwork could occur among students from the different facility sites. Through a week's schedule, each group experienced the curriculum offerings of literacy instruction, computers, tennis, TiViTz[®] (Scully, 2004), Robotics, a leadership reaction course, leadership training, chemistry lab, and biology lab.

During each period, students were formed into smaller groups, teams, or partnerships dependent upon the activity. In Robotics, partners using the Science and Technology sets of Lego[®] Education (2007) constructed models based on building instructions. Each model assembled by the teamed pair demonstrated various physical science and technological concepts, including forces and motion, simple machines, measurement, and energy. Also in TiViTz[®], partners competed with one another on a checkers-like game board while performing arithmetic calculations. Wearing safety-goggles in the chemistry and biology labs, teams of students performed experiments such as making ice and discovering DNA. While engaged in the Leadership Reaction Course held on the university's great lawn, teams completed scenarios requiring physical activity, teamwork, and leadership direction by the day's selected child. In additional leadership workshops offered by the university's undergraduate student leaders, students experienced group sessions on the topics of self-esteem, decision making, character development, and bullying.

The three literacy teachers formed smaller groups of six to seven students, with each group remaining every day with the one teacher over the program. In efforts to influence homeless children in a positive way and to provide guidance in helping them overcome the influences of inner-city factors and the factors influencing homelessness, the books children read were focused on three socially relevant themes. The themes asked children to be aware of the dangers of substance abuse (say NO to drugs, alcohol, and cigarettes), to be a good person, (be of good character at home, at school, and on the athletic fields), and to show respect for the environment and the community (don't litter and pollute). Rudman (1995) described the literary readings offered to children as an "issues approach" in which problems found in literature mirror what actually occurs for people in society. Also known as the practice of "bibliotherapy," an issues approach offers a thematic way to provide guidance and protection

through story reading. Each group read eight trade-books. Two dealt with the Say NO! theme, four with the good-person theme, and two with the environmental theme. Students were instructed in each book's new vocabulary. They reconstructed each book reading with appropriate story and concept maps in preparation for writing. Finally they wrote eight papers based on map and book information, and revised each paper after teacher feedback regarding the qualities of writing. New vocabulary was stressed throughout each book reading and students were asked to apply their new word knowledge in their writing activities.

Results

The results of the experimental and control groups' performance on the study measures were analyzed by independent t-tests. When the pretests scores on each variable were compared to determine whether there were any significant differences between the groups at the beginning of the study, it was found that there was only a significant difference between the groups on the SDRT 4 Vocabulary task. The control group ($M = 24.88$, $SD = 3.44$) was significantly stronger on this task than the experimental group ($M = 22.29$, $SD = 5.8$) ($t_{66} = 2.15$, $p = .04$). This significant difference was maintained on the posttest ($t_{66} = 2.33$, $p = .03$) but on the gain score analysis there was no significant difference between the improvement of the groups ($t_{66} = .550$, $p = .584$). The gain score analysis on the WRAT 4 Spelling test scores had a similar finding in that there was no significant difference between the groups ($t_{66} = .719$, $p = .475$).

However, the results of the gain score analysis of the Writing task revealed a significant difference between the experimental group ($M = .32$, $SD = .773$) and the control group ($M = -.24$, $SD = .710$) ($t_{66} = 2.613$, $p = .011$). While there were no significant differences between the mean pretest scores of the experimental group ($M = 2.69$) and the control group ($M = 2.66$), an analysis of the posttest scores of the experimental group ($M = 2.98$) compared controls ($M = 2.42$) indicates that the experimental students were quite near to the benchmark standard of 3.00 and scored significantly higher than the control group ($t_{66} = 3.39$, $p = .003$). Fifty-two percent of the experimental students scored at or above the 3.0 standard compared to 25 percent of controls. The large effect size ($d = 0.97$) also reveals the practical significance of the writing emphasis.

The pretest - posttest analyses for the BVT and tennis tasks were completed using dependent t tests and in each case revealed that the posttest results were significantly higher than the pretest (BVT: $t_{47} = 6.505$, $p = .000$; tennis forehand: $t_{33} = 17.34$, $p = .000$; backhand: $t_{33} = 9.89$, $p = .000$; volley: $t_{33} = 13.234$, $p = .000$).

The Student Project Evaluation completed by 66 students consisted of open-ended questions. The students rated tennis – 40%, computer – 19%, science – 16% and literacy – 17% as their favorite activities. Six students enjoyed "meeting new people" and one noted that "this program is more fun than school." In response to the question that asked them to talk about some of the new things they learned in the program 26% identified tennis, 19% science, and 11% the leadership exercises. When asked how the activities of the program would help them in school or in their own life, 21% indicated that they would be willing to help others or the teacher in school; 18% indicated that the program will help them in the area of literacy. Other individual responses referred to the fact that they learned to say "no" to drugs or to smoking, and how peer pressure could affect their life. When asked to write about any experience that may have enriched their life in some way, some wrote about the "experience of learning new words, learning how to get a job, of going to biology to learn new things, of best experience in Robotics, and of doing good in school." One child wrote, "I was about to fight someone but

learned not to waste time on nonsense things. Also learned that it is ok to walk away from a fight and that most people aren't worth the drama." Another wrote: "making good decisions can make your life incredible." Two spoke of the importance of teamwork: "Meeting with the army people, they put us through some difficult courses and we were successful because we worked as a team."

Discussion

Students in the four-week program were exposed to differing program offerings designed to improve their academic, athletic, computer and leadership skills in efforts to close educational gaps and improve social functioning. The evaluation component addressed research questions that emphasized writing, spelling, vocabulary, and tennis skill development. When compared to controls the experimental students did not reveal gains in vocabulary and spelling ability as measured by two norm referenced tests, but did demonstrate highly significant gains in writing ability based on the New York State rubric criteria. On two project-developed instruments designed to measure improvement in book vocabulary and tennis skills, experimental students showed significant increases based on dependent t-tests analyses of their pre- and posttest scores. Furthermore, written responses on the Student Evaluation form indicated that many of the students benefited and learned from the program offerings especially in the areas of tennis, computer and literacy development.

Structured academic and computer offerings supplemented with athletic and other learning activities would appear to be quite beneficial for homeless students when offered during the out-of-school-time of summer. This type of program may succeed because it offers consistency and routine to a population used to a highly mobile life style that has experienced a disjointed school year. Here there was no sense of "catching up" with the skill work and assignments of one's classmates. Instead, students read, wrote, and did computer work each day and added to their skills as they acquired new vocabulary, writing techniques, and information to add to their knowledge base. Athletic participation with the tennis activity may have provided both a motivational and learning complement to the academic offerings.

The design approach presented in this paper offered homeless students two types of educational reform as suggested by Mawhinney-Rhoads and Stahler (2006):

1. that of supplemental support services to enhance academic success beyond traditional school hours and
2. that of transitional schooling held exclusively for homeless students in a controlled setting.

By serving homeless students on a college campus, we created homogeneity of social class, increased the likelihood of peer, teacher, and coach acceptance, established high expectations for all students to succeed academically, and had a plan to evaluate their academic achievements.

By focusing on writing and its connection to reading, we also wished to lessen the gap of summer loss and provide the students with skills that would help them in the formal arena of schooling when they returned in the fall. We believed that the benchmark standard of writing an acceptable paper was a task of worth and value. The National Commission on Writing (2003) recommended that the time students devote to writing should be at least doubled, that writing should occur across the curriculum, and that writing should occur during out-of-school time. The writing activities accomplished in our approach with pens, pencils, and keyboard asked

students to reflect upon socially relevant issues and consider the use of new word meanings found in the trade book readings.

Engaging small groups of students in a guided reading/writing methodology, the literacy teachers had students read, discuss, interact, map, write, revise and create a project based on each book offered. The books were used as a "magnifying glass" to enlarge and enhance the message of the themes (Vacca & Vacca, 2002). Vocabulary, developed out of the readings, was emphasized by teachers so that students could apply their new word knowledge in their writings. The literacy engagement over the four weeks was cumulative and recursive in that written products were outcomes of each trade book reading. With this approach, students' expectations were that reading, reconstructing through mapping, vocabulary development, writing and revision were connected as one unifying event. The routine and writing expectations continued in the computer lab. Using Kidspiration[®] 2 students planned, mapped, authored, used visuals, and linked to internet informational resources to create projects connected to the three themes.

The literacy approach described in this study reveals that gains in writing proficiency can occur during a summer program for less-than-proficient writers when they are engaged in intensive writing instruction. Secondly, direct vocabulary instruction of "tier-two" level words found in the students' literary readings provides unique and beneficial opportunities to enhance vocabulary knowledge.

Recommendations

The intervention program for homeless students described in this paper attempted to provide educational and enrichment opportunities to a very needy population. Other researchers and program developers may wish to strengthen the research design and program offerings. Our research design attempted to close achievement gaps and fulfill standards criteria so that students would have stronger academic skills when they returned to school in the Fall. Future researchers may want to use other instruments and program designs to measure effectiveness in arithmetic processing, vocabulary development, spelling, writing, and computer skills. For instance, if the TiViTz[®] and the Science and Technology Sets of Lego[®] Education were implemented in greater depth, rather than on alternating days as done in this study, students may reveal greater ability to perform arithmetic calculations when compared to controls. If a Book Vocabulary Test is constructed to measure vocabulary growth of experimental program students, the same test should be used with the control group population. To measure enhancement in overall writing and subsets of writing such as spelling and vocabulary usage, others may wish to use a norm-referenced instrument such as the *Test of Written Language 4* (TOWL-4) (Hammill & Larsen, 2009).

Because of residence instability and school changes, developing ongoing and supportive relationships with the students' many schools would be a challenge. However, such a relationship may work well if programs for the homeless students were established after school at facility sites and on weekends at a resource-enriched site. Secondly, regardless of the timing of out-of-school time programs, interaction and connection with the students' parents should be considered to be highly beneficial.

The contribution of athletic activities to learning outcomes could also be more systematically measured. While athletic participation often provides both a motivational and learning complement to academic offerings (Entwisle, Alexander, & Olson, 2001; Zaff, Moore, Papillo, &

Williams, 2003), we did not determine if participation in the tennis activity had any relevance to improved social and academic behavior. Possibly more effective use of the students' Project Evaluation form and personal interviews would indicate that students perceived sports participation to be a positive complement to the academic experience.

Limitations and Conclusions

This project, especially in the evaluation component, experienced the major limitation of regular, sustained attendance. Committing to attend the program, in many instances, was controlled by other more immediate factors. Like others, even with the best program intentions and support from DHS central staff and facility directors, student absenteeism created gaps in program effectiveness and measurement of goals (Gibbs, 2004; Harvard Family Research Project, 2006; Mawhinney- Rhoads & Stahler, 2006).

Incentives were offered to both experimental and control students to maintain program completion. Control students received university t-shirts, caps, and pens, and experimental students were encouraged to maintain sustained attendance with use of a number of incentives. Those that attended 17 days or more (20 days total) were awarded with a \$1,000 scholarship voucher to attend St. John's University for each of four years. Accompanied by many of their parents, all students attending the awards ceremony received a new tennis racket, a certificate of completion, and enjoyed a special lunch.

In conclusion, the intervention program described in this paper presented diverse opportunities for homeless students to improve their educational, social, and athletic skills. The program may also be the first of its kind in the homeless literature whereby students' writing development was compared to matched controls as vocabulary acquisition occurred based on literacy readings. The experimental students did demonstrate that they were able to overcome the traditional summer loss phenomenon experienced by disadvantaged and poverty-level children and were better prepared to meet the state writing standards.

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