

Teaching Kids How to Fish

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IST 522 Instructional Design

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December 13, 2013

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INTRODUCTION

This report describes a team instructional design project developed for the IST 522 Instructional Design course at CSUMB. The project is a collaborative effort that demonstrates the team's emerging understanding of instructional design principles and shows how those principles can be applied to an instructional design problem.

The instructional design problem in question is the task of teaching city kids to fish. Kids who grow up in cities are familiar with the fish they see in grocery stores, on their dinner tables, and in their tuna sandwiches. But for many city kids, that is where their understanding ends and the gaps begin. Opportunities for city kids to learn to fish are rare. As a result, there is a gap in kids' understanding of how fish are caught.

The instructional design plan described in this report attempts to fill that gap by exposing city kids to the art of fishing. The proposed training enables kids to learn and practice the fundamentals of fishing in a controlled environment, with the appropriate equipment, and with expert instruction. When the training is complete, kids will understand the basics of fishing and have the skills necessary to catch fish on their own.

ANALYSIS

Learner Analysis

The learners in this project are city kids (K-12) who have never fished before. A great variety of entry skills and attitudes is expected as the age group is so broad. Instruction assumes the need to meet the lowest entry skills and ability levels of a kindergartner while also engaging teenage learners. In regards to prior knowledge of the topic area, city kids are exposed to media portrayal of fishing as a classic colloquial pastime, something families do together on vacation,

and even as an extreme sport and survival tactic. Many city kids will be interested in experiencing fishing first hand themselves.

The delivery system is live instruction at a county fair and may be more enticing to kids age 5 - 12 than to teenagers. There is nothing compelling kids of any age to participate. The kids who participate will be those who are self-motivated to learn how to fish. In regards to the learning preferences of our learners: hands-on, active learning will be an appreciated break from classroom instruction.

Performance Context and Learning Context Analysis

For this project, the learning context and the performance context are very similar. Both contexts are outdoors and both involve bodies of water that contain live fish. The primary difference between the performance context and the learning context is the controlled environment of the learning context. The learning context is a small pond on the grounds of a county fair that is generously stocked with hungry catfish. Catfish are notoriously easy fish to catch, and they are hardy; they can be handled and released without sustaining injuries. By contrast, the performance context is a wild pond that contains unknown quantities and species of fish. Therefore, the odds of catching fish in the learning context will be higher than the odds of catching fish in the performance context.

The equipment that will be used in the performance context is identical to the equipment that will be used in the learning context. Depending on the species of fish being pursued in the performance context, however, some supplies, such as bait and line weight, may differ. For example, bread balls are used as bait in the learning context. If learners are fishing for trout in the performance context, they might need to use a different type of bait, such as worms. However, the principles of setting up the equipment, attaching bait to a hook, casting a line into the water,

and releasing the fish back into the pond, remain the same in both the performance and learning contexts.

Instructional Goals

This instructional design project will teach kids how to accomplish the following tasks:

1. Set up the fishing rig (rod, reel, line, bobber, sinker, hook, bait).
2. Cast the line into the water.
3. Hold the line until a fish bites, then reel the fish in to shore.
4. After reeling the fish in to shore, take a photo, then release the fish back into the pond.

Each of these tasks, or instructional goals, is described in the following section.

Goal 1: Set up the fishing rig

Level: Manipulation. Using the equipment and instructions provided, kids will set up a rig that's appropriate for 'still fishing' from shore by attaching a bobber, sinker, and hook to a fishing line, then attaching bait to the hook.

Audience: City kids (K-12) who have limited or no experience fishing.

Behavior: At a county fair, and using equipment and verbal instructions provided by the 4H group, kids will set up a rig for “still fishing” from shore as follows: Successfully attach a bobber, sinker, and hook to a fishing line.

Condition: Given a rod, reel, fishing line, and verbal instructions provided, kids will attach a bobber, sinker, and hook to the line.

Domain: Psychomotor; **Level:** Manipulation.

Degree: The bobber, sinker, hook, and bait are attached to the line so that they can be cast into the pond and retrieved without falling off the line.

Goal 2: Cast the line into the pond

After demonstrating how to bait the hook, kids will learn to cast a line.

Audience: City kids (k-12) who have limited or no experience fishing.

Behavior: Kids will learn proper techniques in casting a line into the water (Freshwater).

Domain: Psychomotor; Level: Coordination.

Condition: Given a large enough water area to practice casting.

Degree: Kids will be able to demonstrate their casting abilities into the water successfully numerous times.

Goal 3: Wait for a fish to bite, then reel in the fish

After casting the line into the pond, kids will hold the line without doing anything that might scare the fish (making loud noises or quick movements), watch the bobber, and reel in the fish when it bites.

Audience: City kids (K-12) who have limited or no experience fishing.

Behavior: At a county fair, and using equipment and verbal instructions provided by the 4H group, kids will hold a fishing line until a fish bites, then reel in the fish.

Condition: Given a rig set up for still-water fishing, and having cast a line into a pond.

Domain: Psychomotor; Level: Manipulation.

Degree: When the fish bite, the kids are able to reel the fish in to shore.

Goal 4: Choose to release fish back into the pond

Appreciating that a released fish can continue to populate a body of water with more fish, kids will choose to release fish back into the pond.

Audience: City kids (K-12) who have limited or no experience fishing.

Condition: At a county fair, kids will practice catching live fish from a body of water with provided equipment and verbal guidance.

Behavior: Kids choose to release fish.

Domain 2: Affective: Level: Valuing.

Degree: Kids will choose to release all caught fish.

Goal 5: Release fish back into the pond

Kids will remove the hook from the mouths of caught fish by holding the fish face up, avoiding touching its gills and eyes so as not to harm it, and removing the hook with their fingers carefully without stabbing themselves.

Audience: City kids (K-12) who have limited or no experience fishing.

Condition: At a county fair, kids will practice catching live fish from a body of water with provided equipment and verbal guidance.

Behavior: Kids will remove the hook from the fish's mouth and return the fish to the water without harming themselves or touching the fish's gills and eyes.

Domain 1: Psychomotor; Level: Manipulation.

Degree: Kids will touch fish gills and eyes zero times and stab themselves zero times.

DESIGN, DEVELOPMENT, AND IMPLEMENTATION

Assessment Instruments

This section describes the instruments that will be used to assess learner performance of objectives.

Objective 1: Kids will attach a bobber, sinker, hook, and bait to a fishing line.

Assessment criteria: The bobber, sinker, hook, and bait are attached to the line so that the line can be cast into the pond and retrieved without the items falling off the line.

Test item: Checklist

Instructions for the examinee:

1. Given a rod, reel, fishing line, and other supplied equipment:
 1. Slide a bobber onto the line and secure it.
 2. Attach a split sinker securely to the line using pliers.
 3. Attach a hook securely to the line using the improved palomar knot.
 4. Attach a bread ball (bait) to the hook.
2. After learning proper casting technique, cast the line into the pond, then reel it back to shore.
3. Examine the bobber, sinker, hook, and bait to verify that they remain securely attached to the line.

Task	Yes	No
1. Examinee follows directions to attach a bobber securely to the line.		
2. Examinee follows directions to attach a split sinker securely to the line.		
3. Examinee follows directions to attach a hook securely to the line.		
4. Examinee follows directions to attach a bread ball (bait) to the hook.		
5. After casting the line into the pond, the examinee reels the line back to shore and verifies that the bobber, sinker, hook, and bait remain securely attached to the line.		

Examinee is deemed successful if all checklist items are completed with positive marks.

Objective 2: After demonstrating how to bait the hook, kids will learn to cast a line.

Assessment Criteria:

Given the equipment necessary:

1. Stand with shoulders square, facing the direction in which the line will be cast.
2. Hold the rod horizontally with the reel on the bottom side of the rod.
3. Reel in the line so that the bobber is a few inches from the tip of the rod.
4. With your index finger, hold the line against the rod.
5. Open the bail with their other hand.
6. Check the surrounding area to make sure it is clear.
7. Bring the rod back slowly until it is positioned behind you, not perpendicular to the ground.
8. Cast the line by flicking your wrist, using less of an arm motion, while simultaneously letting the line go with their index finger.
9. When the line hits the water, reel the line back in.
10. Repeat until proficient.

Test item: Checklist

Task	Yes	No
1. Examinee correctly grips the reel.		
2. Examinee has correct stance and pre-cast set up.		
3. Examinee checks their surroundings before casting.		
4. Examinee casts the line accurately and within a reasonable distance.		
5. Examinee reels in the line properly.		

Examinee is deemed successful if the examiner is satisfied with their performance.

Objective 3. After casting the line into the pond, kids will hold the line without doing anything that might scare the fish (making loud noises or quick movements), watch the bobber, and reel in the fish when it bites.

Assessment criteria: Kids will demonstrate the ability to remain patient and quiet until a fish bites, then they will reel the fish in to shore.

Test item: Checklist

Instructions for the examinee:

1. After casting the line into the water, wait and watch the bobber.
2. When a fish bites, reel it in to shore.

Task	Yes	No
1. Examinee holds the rod and reel as demonstrated.		
2. Examinee remains quiet and patient while waiting for fish to bite.		
3. Examinee notices when a fish bites and responds by reeling it in to shore.		

Examinee is deemed successful if all checklist items are completed with positive marks.

Objective 4. Kids will recall that a released fish can continue to populate a body of water with more fish.

Assessment Criteria: After a kid catches their first fish, a volunteer who has been working with the kid will ask him/her why they will release the fish back into the water. The kid should respond with an answer indicating that released fish can make more fish. Answers will vary in sophistication, especially dependent on the kid's age (age range is 5 - 18).

Test item: Scale

Made no reference to value of a fish's life	Referenced a value of fish's life unrelated to population	Vaguely referenced fish population	Clearly stated that released fish can make more fish
1	2	3	4

If the evaluator rates the examinee's response between 0-2, the volunteer will explain again to the kid that released fish can continue to populate a body of water with more fish, and the kid will be evaluated again the second time they catch a fish.

Objective 5. When removing hooks from the mouths of caught fish, kids will hold the fish face-up, respectfully avoid touching its gills and eyes, and remove the hook with their fingers without stabbing themselves.

Assessment Criteria:

For kids aged 5-9, kids will receive coaching every time they release a fish.

For kids aged 10-18, kids will receive coaching the first time releasing a fish.

Test item: Checklist

Task	Yes	No
1. Examinee holds the fish face up		
2. Examinee avoids touching the fish's gills and eyes		
3. Examinee removes the hook with their fingers without stabbing themselves		

Examinee is deemed successful if all checklist items are completed with positive marks.

How We Will Use Gagne's Nine Events of Instruction

For this project, we will employ Gagne's Nine Events of Instruction (Gagne, Briggs, & Wager, 1992).

Gaining attention

For teaching kids, we decided that gaining attention happens throughout instruction and can almost be thought of as sustaining attention. We will initiate excitement about fishing by showing them the equipment, expressing enthusiasm, and letting them know about the picture, certificate, and article of fishing gear they'll take home with them. We will sustain their attention by providing a well-stocked body of water and enough volunteers and stations to ensure the kids will always have something to do.

Inform learner of the objective

The instruction won't make sense to the kids if we just shuffle them from station to station and task to task without explaining what they are learning. They will be told that they are going to learn to fish safely. They will be told they will learn to set up a fishing line with a bobber, sinker, and hook, learn about a kind of bait, learn how to cast their line and reel in fish, and learn how to release fish after they are caught.

Stimulate recall of prerequisite learning

City kids who have never fished before have performed small psychomotor tasks that relate closely to the new tasks they will be learning. For example, we will be teaching them to tie an improved Palomar knot to attach their hook. Reminding kids that they already know how to tie their shoes and tie granny knots can boost their confidence and help them visualize the task before they perform it. Reeling in their line can be compared to sharpening a pencil with an old-

fashioned pencil sharpener. Avoiding touching fish eyes during release can be compared to avoiding getting shampoo in their eyes.

Present the stimulus material

We will offer a demonstration of each task to be learned at separate stations prior to a final real-life fishing experience using a stocked body of water.

Provide learning guidance

Each demonstration will include a statement of what is being done and why. There will be opportunity and encouragement of questions, which will be responded to accordingly. The kids will carry around a piece of paper that lists each station they will go to and be signed off at each station. We will have many volunteers available to provide one-on-one coaching as needed.

Elicit the performance

The kids will attempt to perform each task themselves such as attaching the bobber, sinker, and hook to the line. If they get stuck, a volunteer will provide additional instruction and demonstration until the kid is successful performing the task on their own.

Provide feedback about the performance/Assess the performance

An expert at each station will watch the kids as they perform the task and sign off on their slip of paper when the task is performed successfully. The volunteers will cheer on the kids and provide positive feedback as well as helpful hints. When the kid is unsuccessful, there will be opportunity for them to try again.

Enhance retention and transfer

Our instruction is ideal for retention and transfer because kids will be authentically fishing with real equipment and fish, which should facilitate recall for the next time they go fishing. They will leave with a photo of themselves with a fish they caught, a certificate, and a

piece of real fishing gear. We could also provide a fish cooking demo with an opportunity to sample cooked fish at the end of instruction.

EVALUATION

Formative Evaluation

Several one-on-one formative evaluations will be conducted as part of this project. These evaluations will be performed to determine whether the proposed materials, equipment, activities, and instruction are appropriate and effective to meet the objective of teaching kids to fish.

How learners will be selected

For the one-to-one evaluation, we will select kids who have three levels of experience: previous experience fishing, no experience fishing but are enthusiastic, or have never fished before and are indifferent. Each of these examinees will then be subdivided by age groups: 6-9 year olds, 10-13 year olds, and 14-18 year olds.

The type of information we are looking for:

1. Are the materials (demonstration/instruction) appropriate for teaching kids to fish and does the equipment work as planned?
2. Are the instructions clear and readily understood by the examinees?
3. Does the materials include adequate instruction on the subordinate skills?
4. What are the difficulties encountered at particular points in the instruction?
5. Are the activity stations clustered logically?
6. Is the content engaging or are there areas where the learner acts bored or frustrated?
7. What are the reactions from subject matter experts?
8. Is the time allotted for learners to complete instruction sufficient?

9. Is the pace of instruction right (not too fast or too slow)?

The tools and methods for collecting the information

Since we are working with kids, some of whom are just learning to read and write, we decided that the best method to keep kids engaged in the learning process is to literally take each kid through the steps and observe their success rate and attitude. We will make note of which parts of the activity are confusing or otherwise dis-engaging.

The instructor will introduce the lesson, and explain to the examinee that we want to know which parts are confusing or boring so that we can improve it for other kids. These statements need to be presented in an easygoing way so that the kid feels comfortable expressing their true feelings. As the instructor walks the kid through the first station he/she will observe and make note of their reactions in a subtle way. At the end of each station the instructor will ask the examinee a series of short questions.

Examinees will be allowed multiple attempts at a station, with a maximum of three attempts in order to ensure that each kid has a chance. After all of the stations are complete we will give the kids a verbal survey that the instructor will record.

Strategy to apply formative evaluation discoveries

Since we are receiving feedback from only three kids, every moment of instruction they struggle with, appear disengaged in, or identify as boring or confusing will be rethought and improved upon.

Summative Evaluation

In order to determine the value and success of this instruction, our summative evaluation will seek to answer these three main questions:

1. Did kids learn more about fishing from this training?
2. How would an expert judge the kids' final fishing performance?
3. Has this instruction had an affect on the city kid's attitude for and future experience with fishing?

Field Trials

Field trials will take place at a county fair. Fairs typically last 6 days, and the "Learn to Fish" experience will be offered every other day for a total of 3 days (to give the fish a chance to recover between sessions). Each day, there would be 20 participants from schools in the city. Following the training, instructors will gather the kids for a group wrap-up discussion and evaluation. The kids will be asked to discuss the day's events, and evaluators will record their comments. To start the discussion, instructors will ask questions like the following, which will be tailored to the age-level of the kids:

1. What did you learn today?
2. What did you like best?
3. What was your least favorite part? or What was the hardest part?
4. What should we do differently next time?
5. What will you tell your friends about the "Learn to Fish" experience?

The evaluators' notes would be analyzed to determine the program's strengths and weaknesses. In addition, instructors and assistants will be asked to complete a written survey to identify which parts of the training worked well and which parts need improvement. If parents

are present, they will also be asked to complete the survey. The written survey would include the following questions:

1. Which station(s) did you participate in or observe?
2. Did the kids have trouble with any part of the instruction at your station? If yes, please describe.
3. What do you think could be done to improve the “Learn to Fish” experience?

Expert Analysis

An expert analysis will answer the second question. As experts witness the city kids’ final fishing performance, they will judge whether: (1) The kids’ fishing performance is congruent with how they would need to perform in future fishing experiences; (2) There are any bad habits demonstrated in the kids’ fishing performance that will hinder their future fishing experiences.

Final Survey

To determine if this instruction has had any effect on city kids’ attitudes towards fishing or influenced future fishing experiences, we will send the following survey to each of the participating kid’s parents 6 months after the county fair closes. Mailing addresses and email addresses will be collected from parents when they provide permission for their kids to participate.

Has your family gone on any fishing trips since the county fair?

YES NO

If YES, was your child able to apply fishing skills learned while participating in Learn to Fish?

If NO, has your child inquired about going fishing since participating in Learn to Fish?

Management of the Project

To complete this project, the team initially planned to use the rapid instructional design approach. As we learned more about the ADDIE model of instructional design, however, the team incorporated many of the steps from that model into the project as well (Dick, Carey, & Carey, 2009).

Team member assignments

The team initially assigned the required components of the project to team members as follows:

I Introduction: Kate Wilcox

II Analysis: Alethea DeSoto

III Design and Development of Materials: Andrew Bradley

IV Utilization of Materials: Jane Sim

V Evaluation: Jane Sim

VI Management of the project: Kate Wilcox

However, as the project progressed, some changes were required. One member left the team, and her responsibilities were re-distributed. In addition, the remaining team members collaborated extensively on many of the required analyses and evaluations.

Timeline

The following timeline was used to track progress on the project:

Sept.10: Submit informal planning report (this document).

Sept.13: Review feedback, course correct as needed, and continue working.

Oct. 15: All team members to have performed preliminary research and analysis. Meet as a team to review progress and course-correct as needed.

Oct. 29: Meet to review progress.

Nov. 3: All content related to second report is due.

Nov. 5: Submit second report.

Nov. 8: Review feedback, course correct as needed, and continue working.

Nov. 19: Meet to review progress.

Nov. 24: All content related to third report is due.

Nov. 26: Submit third report.

Nov. 30: Review feedback, course correct as needed, and continue working.

Dec. 10: All content related to final report is due.

Dec. 13: Submit final report.

Task List

Task	Responsible Designer	Time spent (approximates)
Report 1: Planning Report	Alethea: Brainstormed topics, contributed to plan of action, reviewed report	n/a
	Andrew: Brainstormed topics, contributed to plan of action, reviewed report	2.5 hours
	Jane: Brainstormed topics, contributed to plan of action, reviewed report	3 hours
	Kate: Brainstormed topics, contributed to plan of action, edited and submitted report	3 hours
Objectives	Andrew: Wrote objective 2, reviewed others objectives	2 hours
	Jane: Wrote objectives 4 & 5, reviewed others objectives	3 hours
	Kate: Wrote objectives 1 & 3, reviewed others objectives	2.5 hours
Gagne's Nine	Andrew: Elaborated on brainstorm, came up with	1.5 hours

Task	Responsible Designer	Time spent (approximates)
Events	the structure of instructional stations	
	Jane: Elaborated on brainstorm, asked questions, wrote and posted	1.5 hours
	Kate: Organized our efforts, initiated brainstorming with lots of ideas, and answered questions	2.5 hours
Evaluation activity	Andrew: Wrote, revised, and submitted report	2 hours
	Jane: Elaborated and edited report	1 hour
	Kate: Performed initial research and edited report	1 hour
Report 2	Andrew: Provided feedback, edited for APA format, and submitted	3 hours
	Jane: Wrote additional content, edited, added sources	4 hours
	Kate: Wrote and organized original content, managed collaboration, edited content	4 hours
Report 3	Andrew: Contacted Dr. Lara for feedback, participated in discussion, edited report	2 hours
	Jane: Wrote summative evaluation, participated in discussion, submitted	2 hours
	Kate: Generated ideas, provided feedback, wrote additional content	2 hours
Final Report	Andrew: Reviewed and edited content	2 hours
	Jane: Reviewed and edited content	2 hours
	Kate: Incorporated feedback from Dr. Lara, edited content, and submitted report	2 hours

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