PoGo

Encouraging Poets on the Go

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ABSTRACT

In order to provide an opportunity for more creative expression inside and especially outside of the classroom, PoGo invites children ages 7-12 to choose photographs from everyday life to inspire poetic musings. By providing scaffolding for various poetic forms, PoGo will encourage children to embrace their inner poet or to collaborate on original poems with their peers. Poems can be stored in a journal, shared with friends and family, or published to a network of peers. Through a mixed methods approach, PoGo has proven to appeal to "ages 7-70" (in the words of a thirteen-year-old user).

Table of Contents

I. The Learning Problem

Learning Problem: Creative Expression Neglected

The framework for 21st century learning presents 4Cs: critical thinking, communication, collaboration and creativity as key learning and innovation skills outcomes. Yet, children's imaginative spirit continues to be neglected in traditional schooling as reflected in declining creativity scores (Bronson & Merryman, 2010).

> "The school creates an environment that does not put much premium on imagination, on personal spirit, or on creative thinking. It emphasizes a form of rationality that seeks convergence on the known more than exploration of the unknown." (Eisner, 1994: 55)

In fact, Eisner argues that the problem with schools is "their industrialized format, their mechanistic attitudes toward students, their indifference to personal experience, and their emphasis on the instrumental and the out-of-reach" which instead of encouraging creativity stifles any creative inclination that children might possess. This persistent failure to nurture creativity through formal schooling would seem even more ironic when President Obama lauded the "creativity and imagination of our people" in his 2011 State of the Union speech.

Facer and Williamson (2004: 20) offered the working definition that creativity is "students' natural capacity to work imaginatively and with a purpose, to judge the value of their own contributions and those of others, and to fashion critical responses to problems across all subjects in the curriculum." Exploring, experimenting, building, constructing, imagining are verbs that speak to the propensity of children and their proactive pursuit of creativity. Cultivating creativity, as opposed to curbing it, allows children not only to hone communication, critical thinking and collaboration skills, but also to grow socially, emotionally and intellectually. In an action research study of youths' literacy practices in a humanities classroom, Walsh (2007: 79) found that "when students are permitted to design new screen-based textual forms, they are highly creative and better able to communicate their knowledge." He added that in the new media age, social collaboration is key to creative learning.

> "Social collaboration is central… where youths evaluate and rationalize their opinions; gather knowledge with / from others; share knowledge with one another; and transform their existing understanding as learners in a constant process of personal and social development." (Walsh, 2007: 80)

This phenomenon described by Walsh is further exacerbated through youths' increasingly intensified involvement in online social networks.

Educators and schools ought to seek out innovative ways to capitalize upon promoting students' artistic self-expression, instead of privileging functional analytical expressions as demanded in standardized tests. This sentiment is articulated by Sheridan-Rabideau (2010) with reference to the No Child Left Behind policy.

> "..in the wake of No Child Left Behind- a policy that in practice, if not design, trades curiosity for accountability, creativity for standardization, and collaboration of each child's ability to fill-in the entire bubble with a #2 pencil- those people committed to reimagining the future of education must revisit the most fundamental question about our central role in preparing citizens of the twenty-first century" (Sheridan-Rabideau, 2010: 54).

Furthermore, research indicated, "the correlation to lifetime creative accomplishment [is] more than three times stronger for childhood creativity than childhood IQ" (Bronson, 2010). Couple that fact with a recent IBM poll in which 1,500 CEOs concerned with "leadership competency" earmarked creativity as the #1 desired trait (Bronson, 2010), and there needs to be a pedagogical shift towards cultivating creative endeavors in order to embrace the ever-increasing demands of the future.

II. Learning Goals

Learning Goals: Empowering Creative Expression through Mobile Poetry

After recognizing the tenuous position creativity has in the formal educational space and the difficulties involved in trying to bring about change within that space, a next plausible step to take would be to introduce change from outside – through mobile technologies in the casual learning space. Unlike the cumbersome nature of computers and even laptops, mobile devices "encourage "anywhere, anytime" learning… allow students to gather, access, and process information outside the classroom. They can encourage learning in a real-world context, and help bridge school, afterschool, and home environments" (Shuler, 2009, p. 5). These technologies have broken free from time and spatial constraints (especially those set forth by classrooms' four walls), allowing users to capitalize on creative inspiration and motivation whenever and wherever they are. This unique characteristic of mobile technologies contributes to empowering users to take ownership of their learning process, providing them a unique platform and space to direct and engage in learning regardless of time and location.

The proposed iPad application intends to leverage the affordances of mobile technologies to attain two sets of learning goals – affective and cognitive. The application is positioned to augment classroom teaching of poetry, reinforcing the learning of poetic forms and simple literary devices such as rhyme and rhythm. The intention is for users to engage with simple poetic forms to build confidence before moving on to creating more complex poems. Ideally, users' interest in creative expression through poetry will be piqued and deepened through interacting with the application.

Below is a summary of the learning goals for the proposed application.

Affective

- encourage an attitude of exploration and experimentation with words
- encourage an interest in poetry and the art of writing poems

Cognitive

- impart knowledge of grade-appropriate poetic forms[1]
- develop capacity to experiment with poetic forms

[1] The application seeks to reinforce classroom teaching and learning by emphasizing knowledge that might be taught in class, e.g., poetic forms and literary devices, thus allowing students who did not grasp the concept(s) the first time in class to review the information again.

III. Theory & Rationale

Literature Review: Creative Expression Through Poetry

Poetry, according to the *Oxford English Dictionary* (2010), is a "composition in verse or some comparable patterned arrangement of language in which the expression of feelings and ideas is given intensity by the use of distinctive style and rhythm" situated within the imaginative or creative literature. Yet, as observed by Flynn (1993), "the activity of poetry increasingly becomes a marginal utility in a marketplace culture," diminished and put away together with childhood. Furthermore, Benton (2000: 92) remarked that "time and examination pressures may lead to 'teaching to the test', a falling off in enjoyment of poetry, a closing down of some things that teachers previously valued and a loss of the creative to the analytical."

Flynn (1993: 40) argued against a separate standard of evaluating children's poetry on the basis of "children's originary innocence" and that free verse should be the preferred mode of poetic expression for children.

> "We do not tell our students that anything goes with their science and math problems, nor even, for that matter, with the prose we teach them to write. When we give children music lessons, they must learn rules and concepts, many of them by rote; if we applied the pedagogy of the elementary creative-writing classroom to piano lessons, we would end up recognizing how ludicrous that pedagogy is: any child can play the piano if only we don't bother with the insistence on measure and the restrictiveness of making them learn the notes."

Recognizing the contradictory nature of existing pedagogies, Flynn (1994: 42) proposed, "Rather than tricking children into a method, we must help them and each other discover value in art, even as we recognize that the very source of such value resides in its contingency."

Cumming (2007: 99) echoed Flynn's sentiments by demonstrating children's intuitive creativity with words in her case study of two primary schools in England.

> "It was observed that when the teacher encouraged word play, the children's interaction with the poem and with each other was energetic and exciting. It is suggested that language play is a natural and positive part of children's development and that by adopting a methodology based on socio-constructivist principles, teachers can connect children's experiences of word play with that of poetry."

Her study (2007: 97) suggested, "there should be greater connection with children's literary experiences outside of school and in the classroom, and that children's body of pre-existing knowledge and literacy practices could be more widely acknowledged…" recognizing the role of poetry as a way of sharing experiences as opposed to a means of mastering practical criticism and/or literary devices.

Benton (1978: 113) remarked, "children have a natural affinity with verse, song, puns, riddles, jokes, word-sounds, rhymes, chants and so on" and claimed, "The "imaginative conditions" within the child, then, are right for the enjoyment of poetry." Yet, personal observations and experience inform many teachers that not all children can appreciate and create poetry. "What should I write?" is a common cry from children despite the ever-present, stimulating world around them. Without inspiration or

guidance, they are left floundering, weighted down by writer's block and disengaged from aesthetic experiences.

These observations and findings thus point to the design principles outlined in the next section.

Design Approach Guided by Educational Theories: Situating Poetry in Everyday Life

With the intention of reaching out to children ages 7 to 12, the authors seek to design an iPad application that empowers students to exercise creativity through poetry. The design approach is informed by a myriad of learning paradigms and theories, mainly but not exclusively theories from the constructivist tradition. Three key principles guiding the application design are outlined here.

1. Scaffolded learning through real-world knowledge and experience

Vygotsky stated that learning took place even before children started attending school. Prior to formal instruction to poetry, children would have encountered poetry in various forms, most notably through advertisements, television programs and movies. Applying the zone of proximal development approach to learning, which states that "human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them" (Vygotsky, 1978: 88), the application seeks to tap into children's existing knowledge of poetry and the world, providing scaffolds that would enable students to approach poetry meaningfully. It seeks to awaken in children "internal developmental processes that are able to operate only when the child is interacting with people in his environment" (Vygotsky, 1978: 90).

2. Guided exploration and discovery of the intricacies of poetry

Bruner (1966: 86) presented four benefits of learning through discovery: develop intellectual potency, spur intrinsic motivation, acquire heuristics of discovery, and aid conservation of memory. Building on the first principle of scaffolded learning, the application environment seeks to be embedded with creative opportunities for children to learn through self-navigation, the intricacies of poetry e.g., poetic forms, rhyme scheme, play with words and so forth.

3. Building creative communities through collaborative creations

Communities of practice are "groups of people who share a concern or a passion for something they do and learn how to do better as they interact regularly" without assuming intentionality. They are characterized by shared domain of interest that members identify with, relationships that enable members to learn from each other through interaction and activity and shared practice (Wenger, 2006: 1-2). Riding on the success of social networking sites, the application intends to revolutionize the writing process from that being traditionally perceived to be solitary to a social process encouraging collaboration and co-creation among budding poets. Through collaborative interactions, the authors hope that individuals can learn from each other during all phases of the creative writing process.

Mobile Technologies as Choice Technology for Learning

Mobile technologies, smart phones and tablets, speak to our proposed application's goals of encouraging and capturing spontaneous bursts of creative writing. The screen size and keyboard capabilities of the tablets especially give users an all-in-one platform to create. Unlike a pencil and paper approach, tablets provide the affordance of a multimedia approach. Users not only can view photographs, but also take and upload their own images; they can access their music and video libraries, thereby immersing themselves in poetic inspiration. With such situated learning, a user then can write and store a poem. "As Okhwa Lee of South Korea's Chungbuk National University said, 'When a child waits, they lose interest in learning or forget what they wanted to know, and learning does not happen. You have to get the secret right there, and with the help of the handheld device, you can have that power'" (Shuler, 2009, p. 17).

The functionality of mobile devices also promotes creativity through collaboration and communication, fostered via email and other web-based social media capabilities. Internet connectivity, 3G and WIFI also mean that users browse the World Wide Web for information and inspiration anytime and anywhere. Although utilized by the casual learner, tablet's capabilities are increasingly being promoted for classroom learning as well.

Past Attempts at Solving the Problem Using Mobile Technologies

A review of existing poetry-related iPad applications in the iTunes store revealed a healthy interest in the area. As at 21st May 2011, searching "poetry" resulted in more than 150 returns in the apps store. Most of the applications can be organized into 3 categories – (1) poetry repositories, (2) poetry writing application and (3) poetry tutorials. For example, "How to be Brilliant at Writing Poetry HD" is a digital book on iPad that follows the traditionally didactic mode of teaching, where users read through explanations and models before getting to an activity page where they can model their poems after the models provided. Another application "Poetry Now 2011" is an examination tool that helps users prepare for the Leaving Certificate examination in Ireland. In both instances, poetry is presented as work for school and disconnected from one's life beyond school.

With regard to poetry writing applications, the majority of these applications equated poetry writing with re-ordering of words on the touch screen, which is highly reductionist and perpetuates an inaccurate view of poetry writing. In general, these applications made no reference to the unique features of poetry nor did they in any way allow users to learn what poetry is all about. Unless the user is already inspired and familiar with poetic forms, most users would find it difficult to start the writing process. However, if this was the case, the user would not need the application because they would be sufficiently motivated and well-versed in poetic arts to write using a word-processor, e.g., MS Word, Notes, etc.

The majority of the poetry-related applications in the iTunes store belong to the category of poetry repositories. Many of these applications such as "American Poetry," "Australian Poetry," "30 Chinese Song Poetry" etc. contain a list of poems that users can read using their iPad. Such applications position

users as passive recipients of poetry, offering them poetry in a de-contextualized and detached environment.

In conclusion, despite the availability of a number of poetry-related applications in the market, almost none of these applications demonstrate how poetry can be personally relevant to users. Furthermore, inadequate scaffolding is observed in poetry writing applications, with which users are very often left to improvise on their own. As for poetry tutorials, while they have high educational value in terms of the rich content provided, they are low on engagement in that these tutorials very often take on the tone of a school textbook, making poetry appear more work than fun. As such, there is a need for a re-examination of how an iPad application can be used to engage users in poetry, making poetry interesting and personally relevant to users as they engage with poetic forms and literary devices through embedded scaffolding, while capitalizing on the technology's affordances and functionalities.

IV. Design Process

Design Thinking In Action

The design process is guided by the design thinking process model developed by the Hasso Plattner Institute of Design at Stanford University, which comprises five stages: empathy, define, ideate, prototype and test.

Observing Potential Users in Action: Needfinding (Empathy)

One of the first questions that surfaced during the design process was the usage pattern of potential users – how is our target audience making use of mobile technologies such as iPhones and iPads? This overarching question was used to generate the following guiding questions used to scaffold the needfinding interviews conducted.

- What apps do they use?
- When do they use the app?
- What else would they want to do with mobile devices?

Three interviews with four potential users were conducted over a month. Interviewees aged 10 (2), 15 and 21 respectively, the outlier representing a possible secondary target user. All interviews were conducted separately and ranged from 30 minutes to 2 hours. In an effort to find patterns and uncover disconnects, behavioral and attitudinal information were gathered not only through the interviewees' feedback but through observations of actual usage as well.

Establishing Coherence From Divergent Findings (Define)

From these interviews, the social nature of mobile devices was reiterated. The interviewees used mobile phones predominantly to maintain contact with friends and family, as well as for entertainment e.g., playing mobile games. Interviewees reported preference for simple games because they were not time-consuming and had a 'feel-good' effect. However, challenging games have their appeal too. This would lead to the next finding that gamers categorize games, which could translate to mean that they would have different expectations regarding different kinds of games. Other factors that could influence choice of games included loading time, graphics' quality and reward system. For a more comprehensive summary of the findings, please refer to Annex A.

At this point in the design process, the specific genre for the proposed creative writing application was not determined. It was difficult choosing between prose and poetry and limited resources made it not feasible to develop with both genres in mind. In general, people read a lot more prose than poetry and might find prose less daunting. However a mobile device is not as conducive to typing huge chunks of text as demanded of short story writing. Furthermore, the process of composing a poem as compared to writing a short story lends itself better to on-the-go learning. These considerations, as well as an identified market gap, led to the first design decision: to design an application around poetry.

Through the empathy and defining work, a composite user began to emerge, thereby helping a point-of-view (POV) to evolve: **The powerless poet, stilted by his lack of knowledge, security, and inspiration, needs a timely, community-based outlet to help capture, craft, and communicate his poetic musings.** For a more thorough narration of the intended user, please refer to Annex B.

Keeping the User In Mind (Ideate-Prototype-Test)

I-P-T Cycle 1

Moving on with an initial POV in mind, the next step was to brainstorm how poetry can be related to real-world knowledge and experience, our first design principle. Recognizing the media-rich environment of games in general and the familiarity of children today with multimedia, the first instinct was to incorporate multimedia e.g., music, photos and videos in the application as prompts. As the discussion progressed over the next few brainstorming meetings, the initial decision to use multimedia was refined to focus only on photos based upon findings from the empathy work. This decision stemmed from the popularity of photo sharing and the inclination to tag and write about photos uploaded, as observed in social networks such as Facebook and on social review sites such as Yelp.

When the project started, the assumption was to design an iPhone application. However, as the team ideated, the decision was made to develop an iPad application instead. The reason for this shift was the iPad's larger screen that would allow for the photo muse (i.e., inspiration), the writing canvas (and guidelines) and keyboard to be displayed at the same time during the writing process. Furthermore, typing would be much easier with the larger iPad keyboard, thereby better facilitating word processing and reducing interference to the creative process.

With these decisions made, the first iteration of the application storyboard is as follows. The application articulated its intent very explicitly in the first screen – users can publish their poem, share with a friend or challenge a friend to write a poem. The next step required users to select a photo muse and a poetic form before proceeding to write their poem. As illustrated in the third screen, writing guidelines would be provided to help users adhere to the poetic form.

Figure 1: Poetry Application Storyboard (First Paper-Based Iteration)

Using this iteration, a cognitive walkthrough was completed with a potential user who offered invaluable feedback to improving the initial design. Suggestions given included the following.

- Distinguishing between personal (emotive) poems and public (technical or point-of-view) showcase poems, allowing users to save to application or publish to dedicated website.
- Users have dedicated profile pages introducing individual poetic exploits and rewards e.g., medals etc. earned.
- Capacity within application to make annotations, e.g., comments or revisions etc. to poems users would like to share with their friends.
- Establish a system of "secret words" that would unlock images, sounds and videos when used in a poem.
- Inclusion of rhyming dictionary.

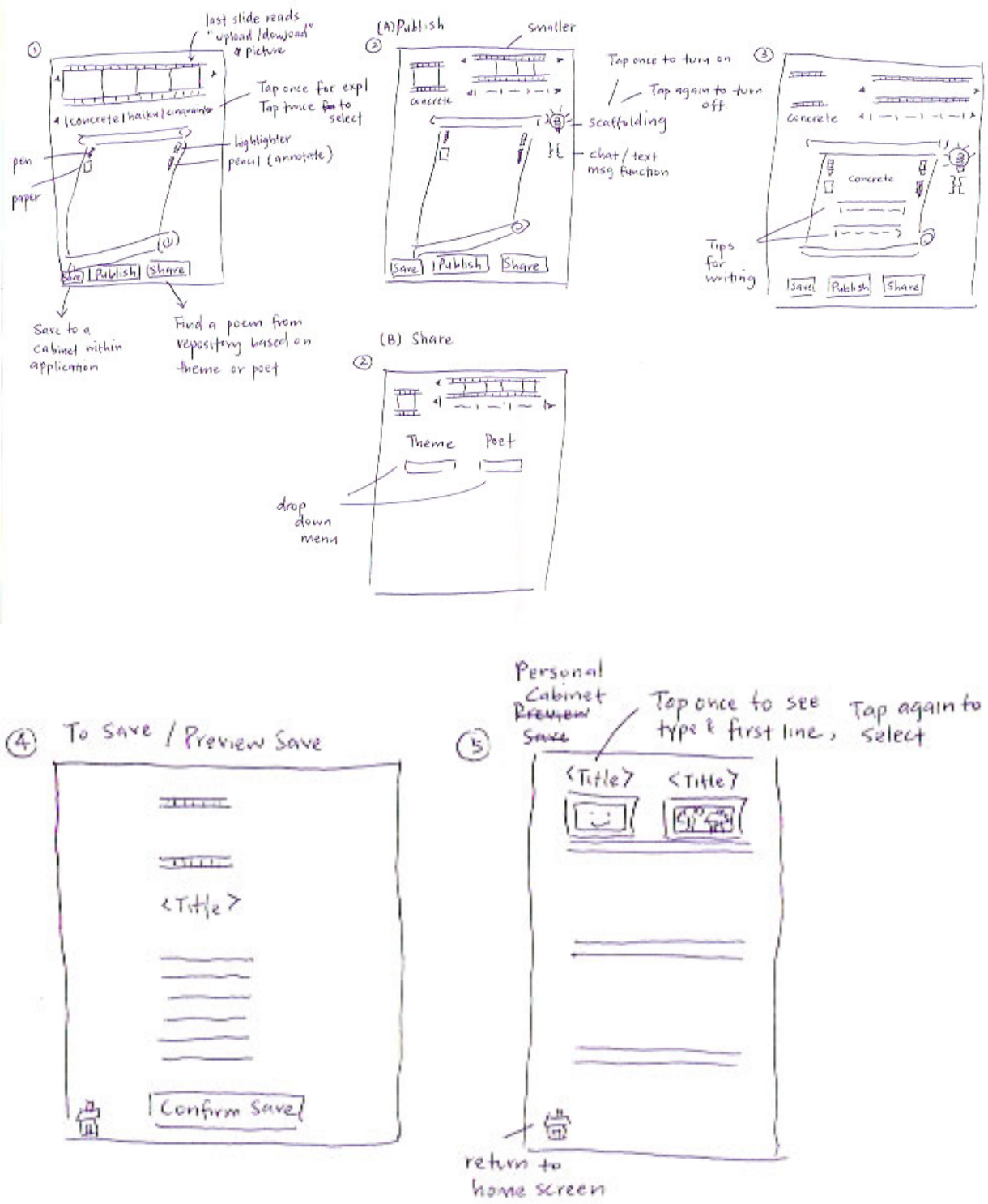
(Please refer to Annex C for a detailed report of the cognitive walkthrough.)

I-P-T Cycle 2

Armed with these insights, the team proceeded to revise the initial storyboard. Instead of explicitly expressing the application intent, the flow of the application was re-conceptualized to allow users to select a photo muse and poetic form when the application is first launched. A design component was introduced for the first time to the application, which would allow users to enhance the visual appeal of their completed poem, inspiring pride in the published piece. Icons were also used to represent the various functions available to user e.g., light bulb as an icon for scaffolding. The overarching design principle for this iteration was a 'buffet' concept, where users can see on screen everything that they can control and/or change.

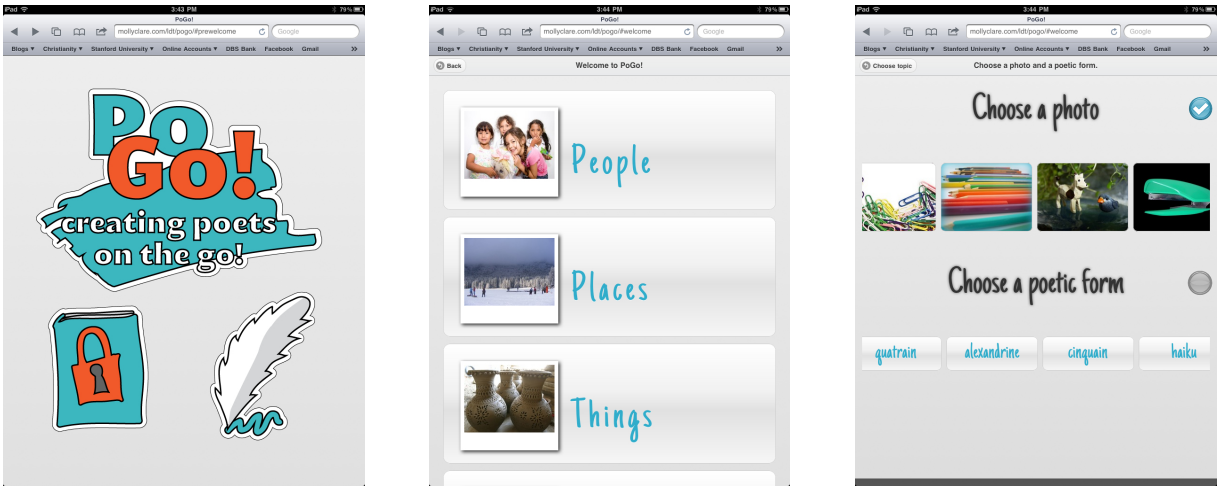
A second cognitive walkthrough was conducted to solicit more feedback on both the application concept and flow as well as user interface. The walkthrough affirmed some of our design decisions and also seeded the idea of real-time collaboration for writing poetry (Annex D).

Figure 2: Poetry Application Storyboard Sketch (Second Paper-Based Iteration)



The team then proceeded to create the first prototype of the iPad application, which was named "PoGo" with the tagline "Creating Poets on the Go." The main screen would show two icons where the locked journal represented a gateway to one's personal poetry collection and the quill represented a gateway to starting and writing a poem.

Figure 3: Prototype of PoGo (First Interactive Iteration)



On the second screen, users can choose a theme they would like to work on before proceeding to select a photo muse and poetic form. Upon completing all selections, the user can start composing his poem. Given that this is an educational application, the designers wanted users to focus on the writing process before they started decorating their poems. This led to a reversal of an earlier design decision to allow users to simultaneously write and decorate their poems.

Two user-testing sessions were conducted to obtain feedback on user interface. Suggested enhancements included faster scrolling, inclusion of "No photo" and "Take your own photo" options. Detailed findings are reported in Annex E.

I-P-T Cycle 3

Taking into consideration the feedback obtained from earlier user-testing sessions, the designers returned to the drawing board to rethink and reorganize their ideas. Key features from the earlier iteration – scaffolding and design functions – were retained and enhanced. In addition to providing writing guidelines, the application now also features explanation of the selected poetic form as well as sample poems. The latter was a request repeatedly heard during user testing and is in line with Bandura's social learning theory (1977), which puts forth the idea that one form of learning is imitation.

Following a research study at Stanford that demonstrates the mental price paid by media multi-taskers[2], the designers consciously made the decision to keep the writing process distinct from the decorating process, in a bid to condition users to doing one thing at a time. This translates to mean that design features of the application operate as a stand-alone module, apart from the scaffolding / writing module. Users are able to manipulate font size, font color, background image and background color of their poem but they cannot make these aesthetic changes while writing. However, users can toggle between the two modules, i.e., write, then decorate, and then revisit / rework their poem, until they are satisfied with their product.

During early user-testing sessions, the designers observed pauses during the composing process where users were 'stuck' or encountered mental blockage. Some users found it useful to think aloud, whether it be engaging the designers in a conversation or mumbling to themselves. This led to the introduction of a meta-cognition module that allows users to record thoughts and questions that come to them as they write. The designers hoped that by placing this functionality within the application, users could be encouraged to be more reflective of their writing process and to share their thought processes.

Until this point in the current design cycle, the designers were still working on a product intended for use in isolation, i.e., a solo poet. However, users also articulated a desire for the application to be more social – allowing for communication between friends. The initial idea was to have users challenge each other, yet user studies revealed that users preferred to collaborate and co-create. The next idea was to have users send lines to each other; collaboration being asynchronous. However, users who tested earlier iterations of our product expressed a preference for synchronous co-creation. This resulted in a user-testing session using Google Documents to mock up the collaboration process where users are able to write the same poem simultaneously, view what each other is doing and chat with each other.

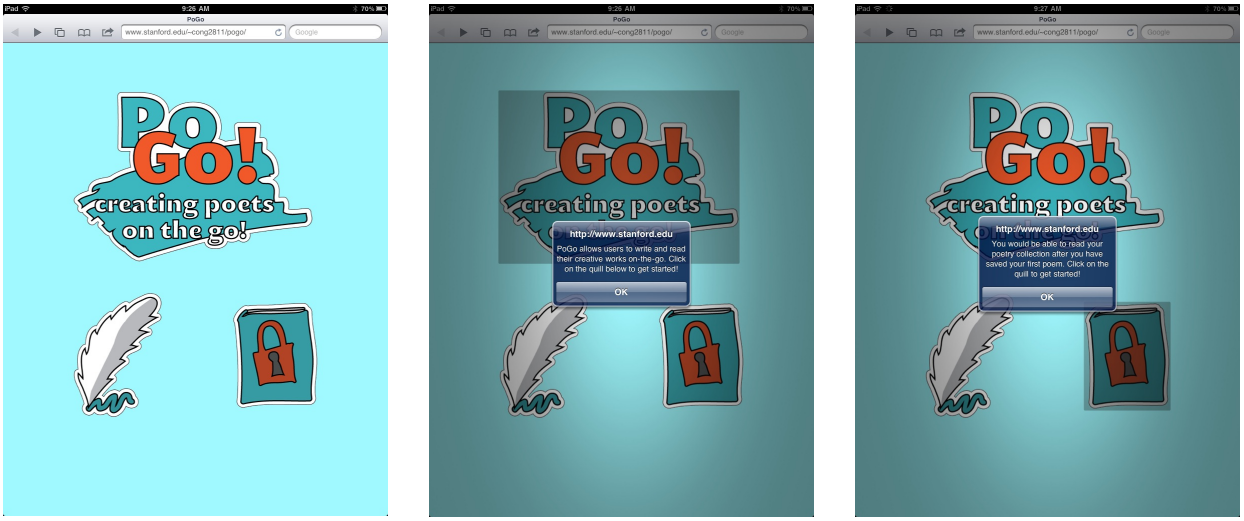
Through the user-testing session, the designers observed co-authoring spurred these budding poets on. When co-composing a haiku, the pair of users generated thirteen final lines to complete the poem they co-created. When co-composing a sonnet, their co-authoring strategies were different. Instead of working together on the same verse, each worked on a verse and tried to match each other's work to form a poem. These observations were encouraging as it demonstrated the diverse possibilities co-authoring could introduce to the process of poetry writing. (Detailed findings from the user-testing session are reported in Annex F.)

[2] The findings were reported in a YouTube video by Stanford University. http://www.youtube.com/watch?v=2zuDXzVYZ68&feature=related (accessed on July 1, 2011)

V. The Solution

PoGo: Inspiring Poets on the Go[3]

Figure 4.1: Prototype of PoGo (Second Interactive Iteration) – Screen 1



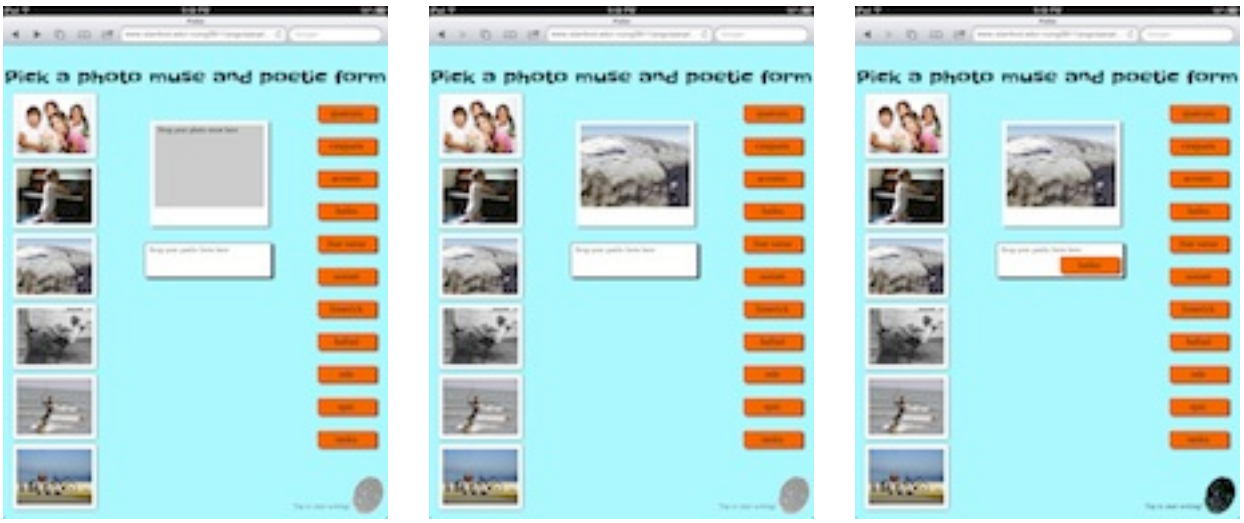
The first screen of the application offers users two options – writing and reading. When users click on the application logo, a pop-up appears to introduce the application briefly. Clicking on the locked journal icon takes users to their personal poetry collection; for users who have yet to write any poems, a pop-up would appear to redirect users to start writing by clicking on the quill.

Figure 4.2: Prototype of PoGo (Second Interactive Iteration) – Screen 2

To start writing, users first select a photo theme from three pre-determined themes, i.e., people, places and things. They would also enjoy the flexibility of not adhering to these themes by using their personal photos. For users who do not have a particular preference, they can choose to randomize their photo theme.

[3] Please refer to Annex G for the complete set of PoGo screenshots.

Figure 4.3: Prototype of PoGo (Second Interactive Iteration) – Screen 3



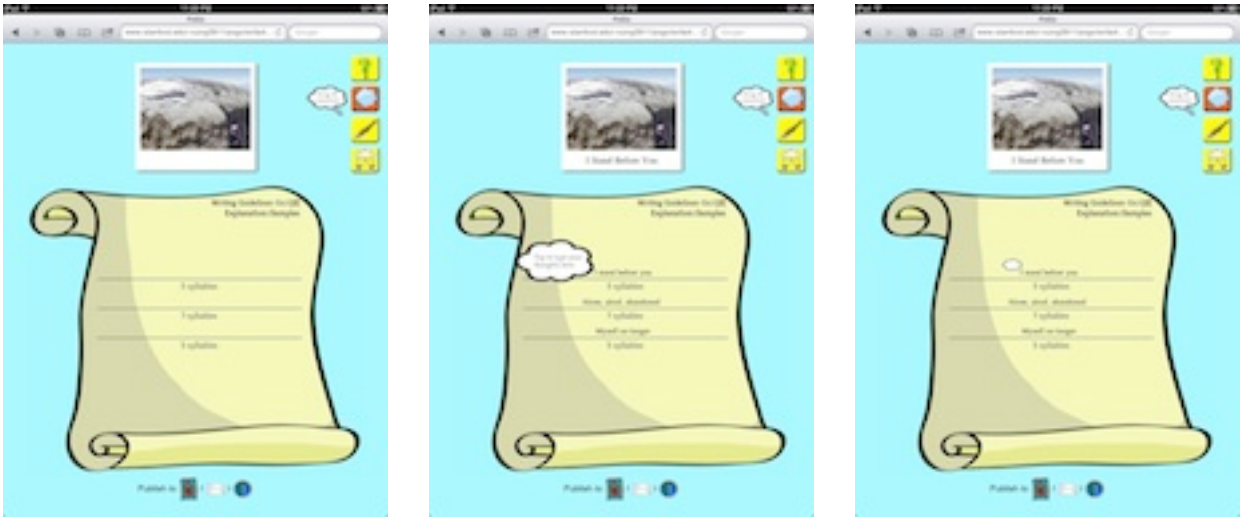
On the third screen, users will select their photo muse and poetic form. Photos are organized into a vertical scrollbar on the left where users can easily scroll through, moving back and forth through the photos. Poetic forms are also laid out vertically on the right-hand side of the screen for users to make their selection. Users are to drag and drop both their desired photo muse and poetic form into the respective placeholders. To confirm their selection and start writing, users tap on the fingerprint at the bottom right of the screen.

Figure 4.4: Prototype of PoGo (Second Interactive Iteration) – Screen 4

On the next screen, the writing canvas, users will notice four icons on the top right corner of the screen. These icons represent four key modules of the application, namely instructional, meta-cognition, aesthetic and collaboration. As a user suggested, all modules are accessible while working on the draft / the same screen. Users also have three options for publication – to personal poetry collection (save to application), sharing via email and publish to Web.

The instructional module of the application offers 2 types of scaffolding. Firstly, writing guidelines would be shown on screen, explicitly informing (and reminding) users the structure of the poetic form selected. Users have the option of turning off the guidelines should they find it distracting (as they become familiarized with the form) or if they wish to challenge themselves. Secondly, the application offers pop-up explanation (center screen shot) and links to examples as pop-ups within the application to support the writing process.

Figure 4.5: Prototype of PoGo (Second Iteration) – Screen 5



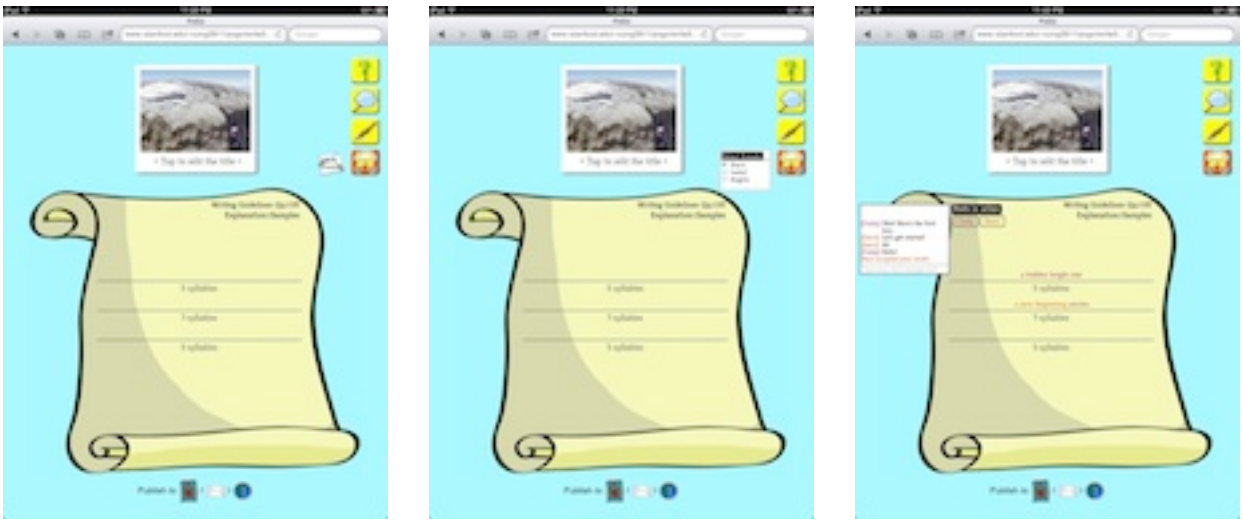
To encourage meta-cognition and reflection, users can drag and drop thought bubbles anywhere on the writing canvas to document their thinking processes, e.g., inserting comments and / or questions that they might want to remind themselves of or share with their friends.

During cognitive walkthrough and user-testing sessions, our target users often expressed a desire for aesthetic expression. To address this, design tools are made available in a separate design module where users have the option of changing font typeface, font color, background image and background color. However, recognizing that this is an educational application and that design is a secondary rather than a primary feature, the designers have limited design tools to only 4 basic types for this iteration.

Figure 4.6: Prototype of PoGo (Second Interactive Iteration) – Screen 6

Collaboration in the application is realized through the process of co-authoring, which affords for real-time as well as asynchronous collaboration. To initiate the process of co-authoring, users can invite friends on their network of peers to jointly compose a poem after selecting a photo and poetic form. If so desires, a user then can begin writing as he waits for his co-author to accept the invitation, or he can wait until the invitation is accepted.

Figure 4.7: Prototype of PoGo (Second Interactive Iteration) – Screen 7



Once the invitation is accepted, the friend's name will appear on the writing canvas to indicate presence and participation. When an author leaves the application, the person's name will be dimmed as a signal that the author not working on the poem at the time but has yet to complete or leave the poem. Co-authors can use the mini-chat window to discuss, debate, and reflect upon their writing process. Upon completion, each author can publish the piece as he wishes.

VI. Learner Assessment Study

Learning assessment studies, also known as learner studies, have the potential to yield unique insights that can be used to improve the design and utilization of the product. These insights are made by observing users in action, purposefully attempting to understand what / why they are experiencing when using the application. Revisiting the learning goals of the proposed application (stated in an earlier section of this report) yielded the following questions that guided our learner study.

Learner Study Guiding Questions

- Do users enjoy writing poetry with the application?
- Have users learned something about poetry that they previously did not know or understand?
- Do users become motivated to read and / or write poems beyond the immediate context of the application?

The intended user is between ages 7 to 12, has some prior experience using mobile technologies, and may possess some prior knowledge of poetry.

Learner Study #1

For the first study conducted, a 12-year-old tested a paper-prototype of the application at her home, accompanied by her mother (to ensure that she would be in no way discomfited and be put at ease, as much as possible).

The study commenced with a brief interview to access her familiarity with mobile technologies and poetry. She shared that she enjoyed poetry because she could express herself in different ways and wrote on average one poem a week for her Language Arts class. She did mention though that she wrote progressively less poetry compared to the time when she was in elementary school. Her sources of inspiration included nature, school, things that she read and saw. However, she did not have a favorite poem or poet.

After the pre-interview, she was given a paper prototype where she first wrote an acrostic poem followed by a haiku. Although she claimed to know what an acrostic poem and haiku were, her performance indicated a superficial understanding of the two poetic forms. She was able to write an acrostic poem but she did not push beyond the elementary form of simplistic descriptors of one word. It was noteworthy that she did not make use of the scaffolding provided in the form of an explanation of the poetic form (hint) and a sample poem. When asked to rate her performance, she gave herself 4.5 out of 5, reflecting confidence and pride in her creation.

With the haiku poem, she skipped over the hint but consulted the example. Despite the writing guidelines on the page reminding her of the 5-7-5 syllabic structure, she did not take into consideration this defining feature of a haiku until she finished. While she articulated that realization during the post-interview – that her haiku did not adhere to the 5-7-5 syllabic structure - she did not make any changes to the poem. Compared to the acrostic poem, she gave herself a lower rating of 4 out of 5.

During the post-interview, the user responded eagerly to the idea of sharing her creations with others and writing collaboratively with friends through the application. She also expressed a desire to be free to experiment and not always have to be constrained by "strict rules", as well as an interest in reading poems from published poets within the application.

In summary, this learner study yielded the following findings: affectively, the user enjoyed creating on the mobile platform and did not feel compelled to stick to the 5-7-5 syllabic structure of a haiku. Her focus was on creative expression. However, it was also observed that she did not attempt to stretch herself cognitively. She made little use of the scaffolding provided and assumed that her knowledge was sufficient, turning to the available scaffolding only when in doubt. There thus is a need to revisit how the application can make the scaffolding more visible and useful. Additionally, the designers are curious about how a user's behaviors and learning may be impacted with repeated and prolonged use of the application.

Learner Study #2

This second study sought to explore possible impact of co-authoring poems on learning, focusing on interactions between individuals during the authoring process. For this study, two 11-year-old girls collaborated on a haiku and a sonnet from their respective homes mediated by a Google document mock-up of the application.

The session began with a 5-min phone call from the session host (one of the designers) to check-in the learners. Both of them then logged into their Google accounts and opened the document (application mock-up) on their respective desktops. Once logged in, both users commenced writing immediately. They worked on a haiku, a poetic form that both of them were familiar with. Initially, both of them were writing on their own, without much interaction. However, they did edit their lines to fit what each other was writing about, reflecting an awareness of a co-author and the need for coherence in the poem (which would not be necessary when composing a poem alone).

Midway through the writing process, they started interacting with each other using the chat function, as they needed to establish whether the haiku was complete or otherwise. They then decided to extend the writing process by generating multiple last lines for the haiku. They started asking each other questions, sounding out ideas, seeking affirmation and establishing agreement. It was observed that as they dialogued with each other, they became more determined to create something better than what they previously created, building off one another's ideas. This attitude was something that the designers had hoped to inculcate – seeking excellence in creativity.

VII. Closing Remarks

Next Steps to Enhance PoGo

The application at present provides peer-written poems as learning scaffolds – users can use these sample poems as writing models. To deepen students' knowledge of the featured poetic forms, the designers intend to build an online repository of poems from the literary canon that can be accessed through the World Wide Web. This next move applies the concept of legitimate peripheral participation from social learning theory, with the pedagogical intent of empowering more meaningful participation among these budding poets. Poems from the literary canon will serve as more complex writing models, with which learners can use to take their craft to the next level.

The designers will also explore the possibility of building a platform for users to share their works and craft through a network of peers. The intent is to build a community of learners and poets who can encourage and mentor each other to grow as poets. The designers also are not averse to opening up the online platform to discussion and sharing works of other literary forms, e.g., short stories, plays and so forth. The rationale for a dedicated platform is in part borne of the desire to create a safe environment for sharing and to offer all interested in poetry and literary arts a dedicated space to engage with each other and the literary arts.

Additionally, the designers hope to incorporate a Toolkit, with which the poets can revise and edit their works. Users have expressed the desire for a thesaurus function as well as a rhyming dictionary. The Toolkit could contain definitions and examples of literary devices such as personification, onomatopoeia, alliteration, simile, and metaphor. Another possibility is for the application to be able to count and feedback to users the number of syllables per line to guide them in their poetic pursuits. With such ready access to these tools, poets would be able to hone their creative writing skills.

Another direction that the designers would like to explore is incorporating other forms of inspiration to include video, original art, graphics, and music. With such increased functionality, the designers would like to investigate how the published pieces could be multimodal as well; how the poems could be published - expressed and shared - using not only text, but video clips, audio (voice recordings as well as sound clips), and graphics. The designers believe that this move is necessary to continue to keep poetry relevant to our young, in view of the rest of their interactions with technology, e.g., in social media, etc., that is increasingly complex and multimodal.

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Annex A

Needfinding: Summary of Findings

Session 1: With Wyatt, aged 10

Insight #1: Simple games were appealing
According to Wyatt, simple games were appealing. He admitted to often resorting to them when he was "bored." He liked that fact that he could be successful, and in these games he felt encouraged to take risks. For instance, in FIFA World Cup, when playing the easy mode, he would take far away shots. Wyatt felt safe enough and comfortable enough to take chances in such easy levels/games.

Insight #2: Players has a schema for games
Wyatt made clear that he categorized his games. His games were organized into folders on his iPod Touch screen. He also explained that in his mind, his favorite games fell in to one of three categories.
- Fun & easy - these games were fast loading and had easy directions.
- Adventurous- those full of action, namely guns.
- Strategy- those that require building or logic.

Insight #3: Players want to be rewarded
Wyatt mentioned that "achievements" meant a lot to him as a player and he listed the different types.
- Achieving different ranks
- Obtaining/buying new objects (like a new knife)
- Gaining special ops
- Earning new characters
- Reaching a new level

Insight #4: Players play games for fun NOT to learn
Wyatt did not mention the idea of "learning" or "education" during the interview. When asked more pointedly about educational games, he kept emphasizing that they had to be fun and fast loading. The only types of educational games he seemed willing to consider would be those that encouraged creativity and constructive activity. He is a big fan of Crazy Machines.

Session #2: With Avery, aged 10

Insight #1: Players want to be challenged
Avery enjoyed particularly games that involved challenge. She likes the reward of progressing to higher levels. For her, progression can be in many forms, e.g., new characters, more challenging obstacles, or more sophisticated abilities.

Insight #2: Games should be aesthetic appealing
Avery emphasized the appeal of good graphics. When asked to explain what she meant by "good," she listed "not pixilated," "clear" and "realistic or comic."

Insight #3: Games have to be fun
Avery emphasized the importance of fun. She also mentioned that she and her friends talk about they new apps they downloaded and enjoyed.

Session #3 &4 With Jolene, aged 15 and Jean, aged 21[4]

Insight #1: Mobile devices are social
Both teenagers used the mobile phone to call, send text messages and tweet. As Jolene was using a hand-me-down mobile phone (less functions and lags, according to her), she used the iPod Touch for games. Jean who is using a Blackberry also uses her mobile device to take photos, check Facebook and as an organizer.

Based on their use patterns, it can be deduced that their use of mobile devices is predominantly centered on keeping in touch with their friends and to a lesser extent, family. They use the mobile device to forge a sense of connectedness with people around them, regardless of where they are or what they are doing.

Insight #2 Games need to be simple
Jean and Jolene's most-frequently-played games were 'mindless' games (in their own words) like DoodleFind and Impossible Task Challenge. They do not spend many hours on the game, usually 5 to 10 minutes, as an in-between activity e.g., while waiting. They enjoyed these games because they were simple and did not require too much effort.

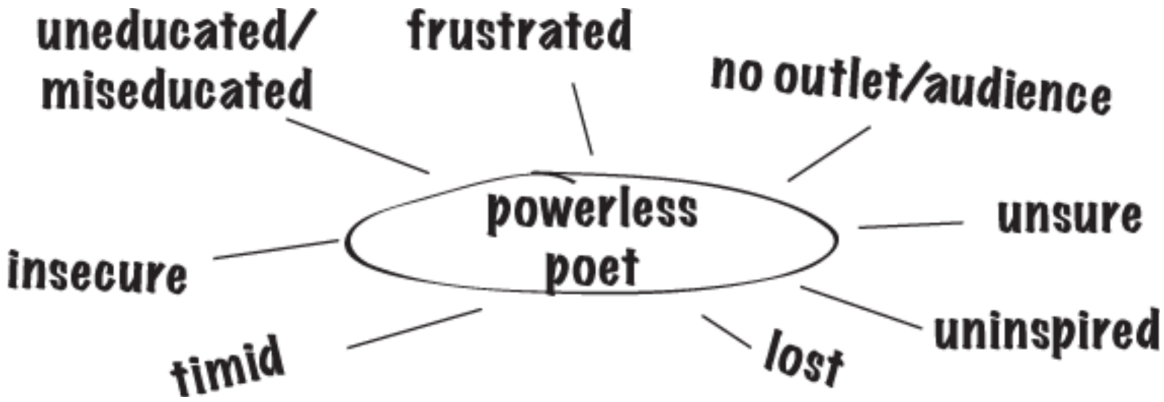
Their favorite game was unanimously Bejeweled and they cited familiarity as one of the main reasons for playing it – they played it on their computer prior to the release of the mobile version. Both interviewees enjoyed the game predominantly because they were able to score well.

Insight #3: Sometimes, it's not about the game
Jolene played Tap Tap, a game that required her to listen to the beat and touch the buttons according to the beat, because she enjoyed the music in the game. Even though she did not enjoy the game play as much – because she said it was mindless and stupid – she continued to play it in her free time and considered it to be one of her favorite games.

[4] For purposes of compare and contrast, as well as to minimize repetition, the findings of the last two interviews are summarized in one section.

Annex B

Narration about User



The powerless poet drifts through his day, his creativity puddling, his voice silenced. He is insecure and timid to validate his thoughts by putting pencil to paper. He is unsure of whom his audience may be, stilted by the lack of an outlet. Additionally, he is frustrated, doubting his own knowledge of accepted rules and regulations of the craft. At times, he feels uninspired, and therefore finds himself powerless in the creative process, in the wonderful world of art.

Yet with technology in the palm of his hand, his potential skyrockets. The photos provide inspiration, which power up his imagination. The accessibility and ease allow him to capture his spontaneous and tangential thoughts. With the proper guidance, he is pushed beyond his comfort zone. He finds pleasure in this pursuit and support as he shares his poetry with friends, a new community of poets. No longer is he powerless, but powerful – buoyed by the strength and beauty of poetic language.

Annex C

Cognitive Walkthrough Report (First Storyboard Iteration)

Interviewed Ana from Santa Monica, CA, 10 years old, an above-average creative individual for approximately 35 minutes.

Interview Protocol

- Which would you rather do when it comes to poetry- write a poem, write one with a friend, or challenge a friend to write one?
- What kinds of pictures or images would inspire you to write (puppies, etc.; photos v. cartoons, etc.)
- What kinds of poems do you know
- Would you want guidance on how to write different types of poems?
- What tools would help you write a poem?
- What would make you want to pick up iPad and write poetry?
- What do you like to take pictures of?
- What do you use to take pictures? (camera v. smart phone)
- What would make this app fun?

Findings

Game Play

- Ana was able to grasp that the game offers 3 options – write & publish, share and challenge. However, she mistook 'share' to mean searching through a repository of poems to share with a friend as opposed to our intention of co-authorship.
- Feedback given that co-writing would not be very feasible because Ana might want to have the poem written here and now, and her friend(s) might not be available.
- Not keen to challenge a friend to write a poem because she might be discouraged or upset if she lost to a friend, which would make her not want to write anymore.
- Would like to have a chat or text-message function built into the application so that co-authors can discuss what they like or dislike about a poem.
- Would like to have drawing tools within the application to decorate the writing canvas. Opined that illustrations add color and 'excitement' to the page, and make the poem more interesting.
- Liked the idea of having pictures as prompts – to give you ideas on what to write. Would like to have the option of being able to download photos from the Internet as well.

Interface Design

- Empower the user with the ability to manipulate interface with a 'basic' package e.g., 3 types of paper (e.g., red, white, yellow), 1 pack of pencils, 1 pack of pens and 1 set of crayon.
- Have interface themes that users can rotate and use according to their preferences e.g., donut theme, cheese theme, horse theme etc.

- Allow users to build a repository of paper, pens, pencils and crayons etc. as they progress with their writing
- Allow users to modify background pictures or pictures within the application repository.
- Allow users to draw within application as muse for their poem.
- Application icon has to be 'exciting'; important to make the interface design exciting and unique 'different from other iPad apps'.

Socio-Psychological Factors

- There are generally two types of poems a person write: (1) 'good' poems that one likes and would want people to read, and (2) poems that expresses one's private emotions that are not to be shared.
- Re-reading her poems can also inspire her to revisit certain themes e.g., a poem on Owls written in 3rd grade inspired her to write another such poem.
- For users who do not enjoy poetry, having a huge picture of what they like or a 'cool picture' or feature e.g., upload photo etc. can draw them into the application.

General Feedback

- Ana enjoys poetry and prefers reading (in the form of a book) to writing. She prefers reading works of adult poets such as Shel Silverstein's poems give her inspiration to write her own. Poems of children can sometimes be boring.
- Suggested the possibility of anonymous publication – a good piece of writing sometimes can invite teasing and being anonymous allow users to share without fear of backlash.

Post-Interview Brainstorming

Revisions to Game Play

From "Pictures Only" to "**Pictures | Download from Web | Draw Your Own**"
- Users can **Download** images from the Internet e.g., fan art, celebrity shots etc. as 'muse' for their poetry
- Users can **Draw** freehand on a blank canvas within the application

From "Publish | Share | Challenge" to "**Save | Publish | Share**"
- **Save**: Allow users to write and build a private poetry collection where they can share with people they trust, straight from the iPad
- **Publish**: Allow users to write and upload poem(s) that they are proud of to a web platform (including poet profile webpage)
- **Share**: Allow users to search within repository of poems based on Poet or Theme and share with their friends – within application (if their friend also has the application on their iPad) or via email
  *Note that the **Share** function in the revised design takes on a new meaning: from co-authorship of poems to sharing famous works.*

Save Features
- **Preview** before **Save**
- **Display** Collection of Poems
- **Sort** Display by Image and Title
- **Locked** Collection (e.g., Poetry Journal) – Access by Password only

Publish Features
- **Upload** to Picture Poetry website
- **Poet Profile** Page which showcases poems written, rewards earned etc.

Share Features
- **Browse** poems based on Poet or Theme
- **Preview** before **Share**
- **Email** friend(s) selected poem with annotation (comments + highlights)

Additional Features
- **Secret Words** that would unlock images, sound effects and animation
- **Rhyming Dictionary** where users can find words that rhyme with the last word of the previous line – to create couplets

Revisions to Interface

- Greater **Customization**
    - Display Themes
    - Fonts
    - Background

  All users start with a 'basic package' and they can earn more fonts, background etc. to decorate their poem as they progress in the game.
- **Drag-and-Drop Decorations** e.g., stickers to design their poem

Ideas to Keep-In-View

- **Publish** to Friends | Web – Viable to share with Friends via email?
- **Collaboration** among budding poets – Feasibility?
- **Competition | Challenge** – How receptive this is to target audience?

Annex D

2/13/11 Cognitive Walkthrough Report (Second Storyboard Iteration)

Interviewed Jack, aged 13 who was not a poetry writer but appreciated the idea of a poetry application. He kept emphasizing the roles of a multi-media approach, a non-frustrating incentive system, and a collaboration component.

General

- Uses iPad applications when feeling lazy
- Likes to read books versus poetry
- When reading poetry though, likes funny poetry most of all
- "Good layout"- easy to do "whatever"; the screens guided the user, no other instruction was necessary
- Likes the left to right scrolling- feels "you're doing it yourself."
- Thought one of the two opening page scrolls should be themes; theme options would then open to inspiration folders of photos, videos, songs or sounds
- The themes ought to be broader: nature, animals, plants, travel, landscapes, adventure, fantasy (v. make-believe) - "not too much depth" so that users have to scroll and look for what they want at the different levels
- Likes the scaffolding in that it "shows how to do it"
- Thinks the app is appropriate for any age, suggested 7-70
- Definitely show all options (poetic forms/user tools), even if some are grayed out

On Publishing

- Likes the idea of collaborating, esp. if there was a chat-type box; thought it would be "more friendly, more fun," "more friend-oriented"; imagined writing three lines then sending it to friends to continue (group activity as opposed to pair activity)
- Likes the challenge idea even more than the collaboration portion- "competition-oriented but not frustrating"
- Likes the idea of recording his voice to read the poem and then send it to a friend; proposed being able to choose different voices to read your poem e.g., an Italian accent for a love poem
- Allow for publication in the form of e-cards (drawing + poem) or postcards (photos from travels + poem), then non-poets might have more of a purpose for trying their hands at poetry

On Designing Poems

- Everyone should have the same design tools, having to earn tools can be frustrating
- Would like different background options: lined paper, scroll, graph paper etc.
- Maybe incorporate an app like iDraw so you can upload your own sketches
- Images or sketches should be embedded on final page
- Maybe offer a free version with banner ads
- Maybe offer a version that you can pay a premium and have completely unlocked tools

On Incentives

- Incentives could be to get "poetry points" ("no normal tokens- they're bland and obnoxious"). The poetry points could be gender-specific: blue with Herculean writing for boys & pink with script for girls. Also he mentioned the idea of XP, experience points, being separate from poetry points.
- Likes the idea of leveling up with some sort of ranking, which would be displayed for others to see. In order to level up, one could earn achievements (bronze, silver, gold). He liked the idea of visuals- trophies or ribbons.
- The points could be redeemed for unlocking different types of poems- work your way up from a couplet to a limerick.
- There could be degrees of difficult associated with the poetic forms. A sonnet would earn more points than a couplet.
- We debated for a bit about what should be rewarded the most. Some ideas (highest-lowest):
    1. Self-publish, co-author, share with others
    2. Comment on others, publish & share, co-author

Others

- Provide samples of poems, e.g., additional link to more information about the poet on an already existing site (Wikipedia, etc.)
- Print capacity?
- Can a completed poem be posted to Facebook wall?
- Maybe allow for a "break time" when you can pause your writing, play another app, and then have a reminder alert bring you back to writing
- Does not appreciate tilting for iPad apps

Annex E

User-Testing Report (Prototype, First Iteration)

Below is a summary of findings from two user-testing session with the McMahons (ages 10, 11, & 12) & the Johnsons (ages 7, 10, & 13)

User Interface

- It was not intuitive for them to scroll through the photos and poetic forms (the oldest actually said there should be instructions as an option)
- The scrolling needs to be faster
- They definitely did not know to pick the poetic form after the photo. I think partly it was because they were not familiar with many of the poetic forms by name, and also the font is quite small. Maybe they should be in "blocks" as big as the photos for continuity. Another idea would be to have tabs on the left-hand side with "Scroll Photos" and "Scroll Poetic Forms."
- I had to remind many to change the poem title – they did not know to click.

Design

- They loved the decorating idea.
- They liked the postcard idea.
- One design suggestion was that there should be an option for the inspiration photo to become the whole background of the poem
- A great suggestion was to not have any photo as muse. Jack just wanted to write a poem, possibly a "No Photo" option in the photo scroll.
- One suggested thumbnails of the finished works for the table of contents in the journal versus list form.
- They wanted the notebook to expand/fill the page when the iPad was held horizontally/landscape.
- I think the "take and upload your own photo" option should be first, before people/places/things.

General

- The challenge did not seem that intriguing to this group of users.
- They did like the sharing, although many said they would just put them in the journal for themselves.
- Meghan (8th grade) said she would use this for school assignments.
- Jeffrey had spelling issues.
- They all seemed proud of their accomplishments, especially when they saw it referenced in the table of contents.

Annex F

User-Testing Report (Prototype, Second Iteration)

Below is a summary of findings from a user-testing session with Barbara and Eliza, both aged 11 (turning 12 years old in July). This user testing session focused on how users collaborate, particularly on the co-composing process and how the chat function is used.

Chat Functions

- Requested to make the chat function text-like
- Users took time to warm-up to corresponding back & forth
- Sample conversation- "Help, I have a good start, but I am having trouble with it's syllable count." – by Eliza

Co-Authoring

- They found it difficult to make final decisions (may be due to time lag)
- Requested for ability to save notes or drafts, e.g., a bank of sorts, ability to track changes
- Requested for ability to save draft ("personal piece") and save final pieces ("polished piece") to different places- to network versus web

General

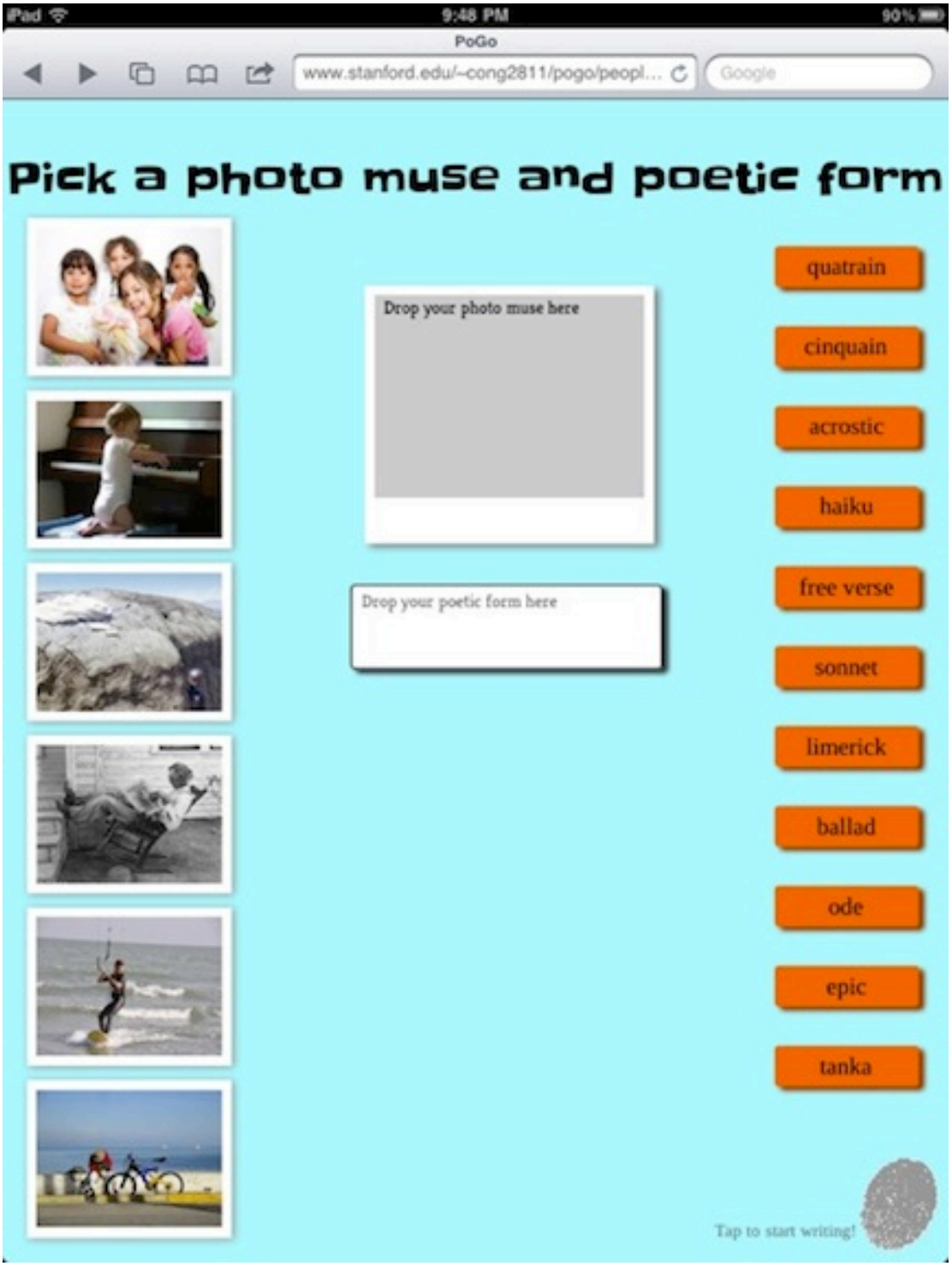
- Requested for color coded text (each user has a specific color)
- Requested for viewer feedback, i.e.,, vote for a line or word choice
- Requested for rating (see rating functionality of "Spore")
- Requested for ability to flag "bad" words
- Requested for ability to search or filter by title, author, poetic form, content, subject matter, photo
- Suggested possible poetic forms to be included: haiku, limerick, free verse
- Comment made by a user "This is exactly the type of thing people need right now!"

Annex G

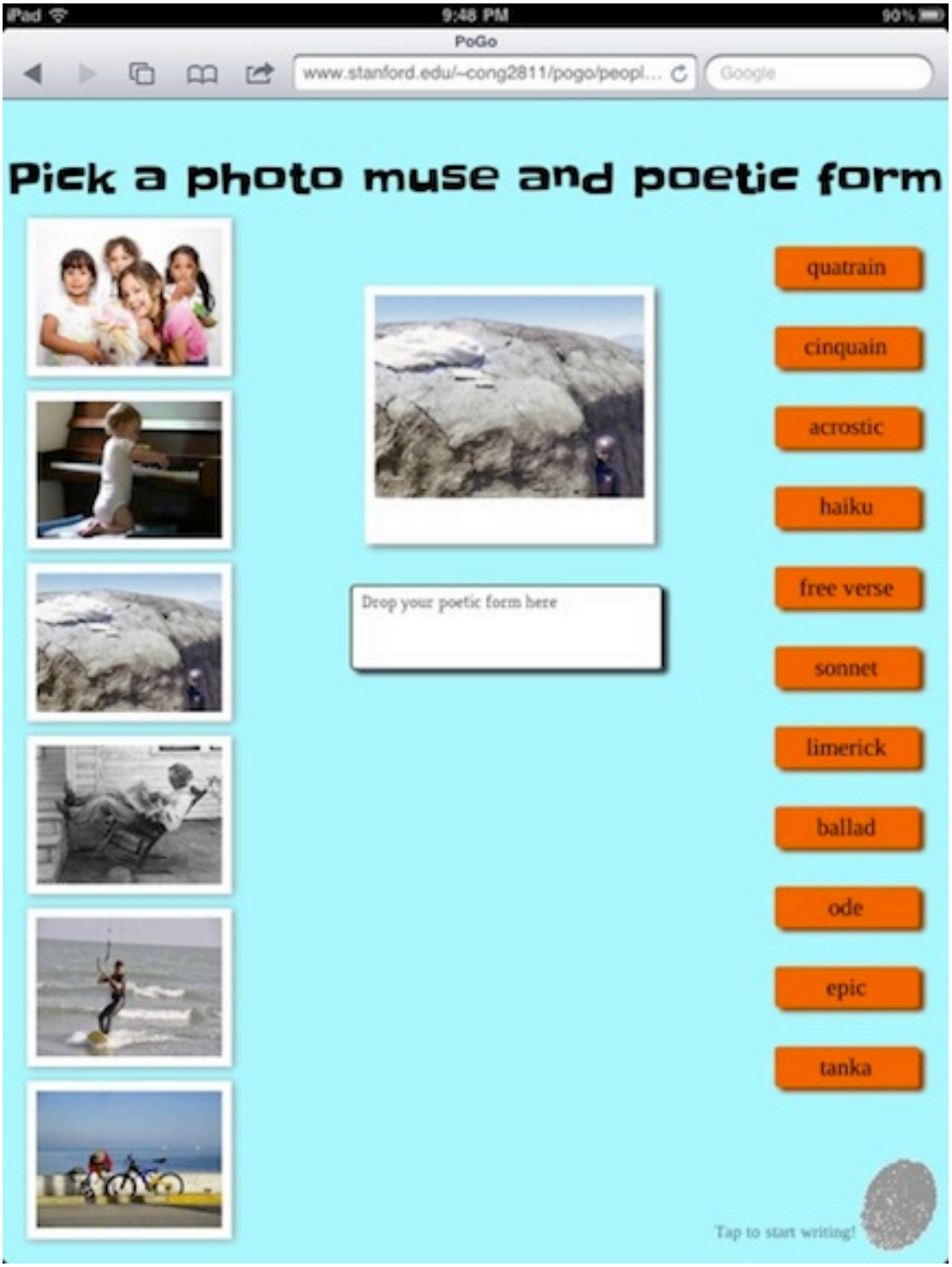
PoGo Screenshots

1. Users tap on the photo to select a theme.

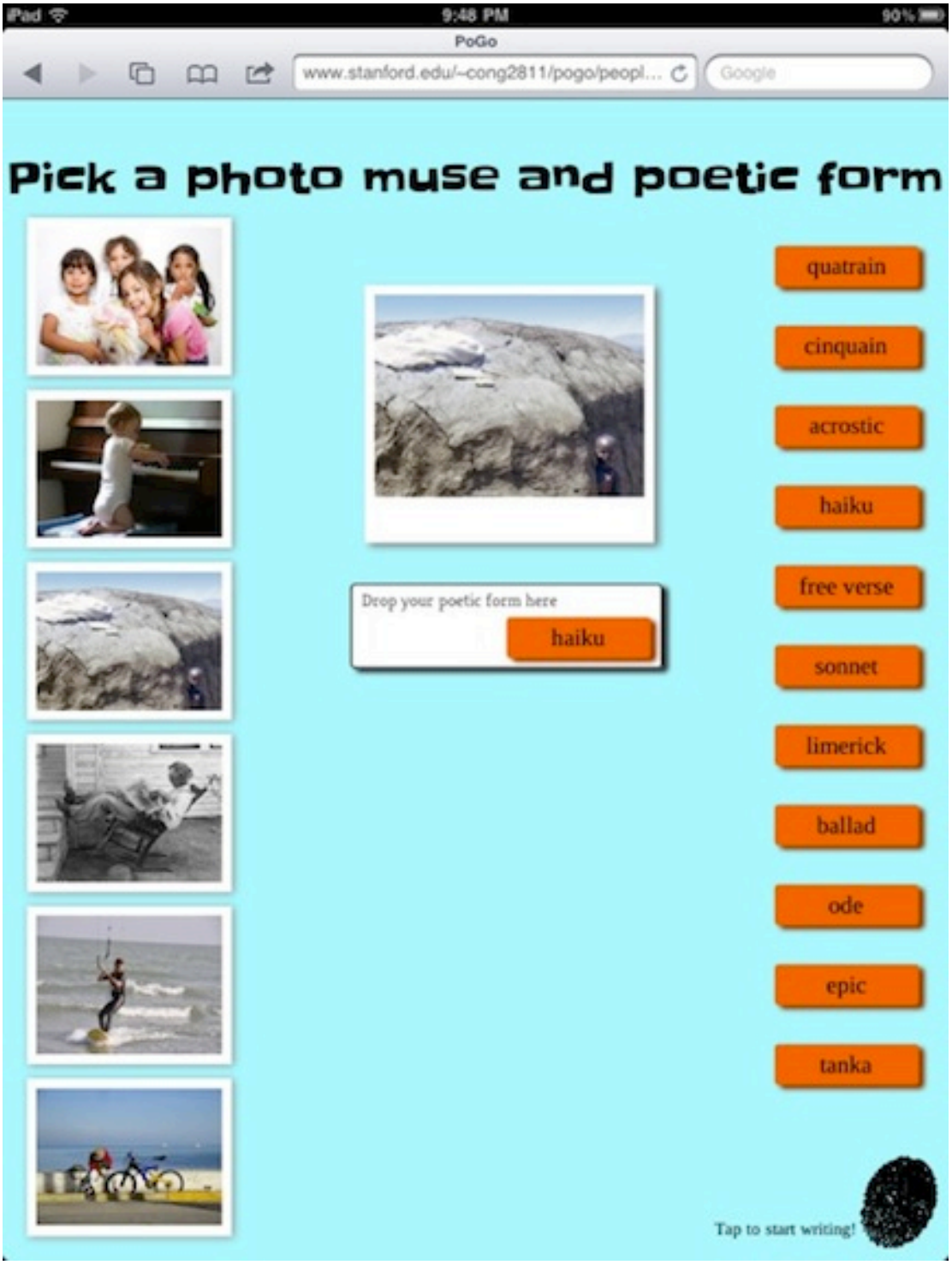
2. Users select a photo muse by dragging and dropping it into the placeholder.



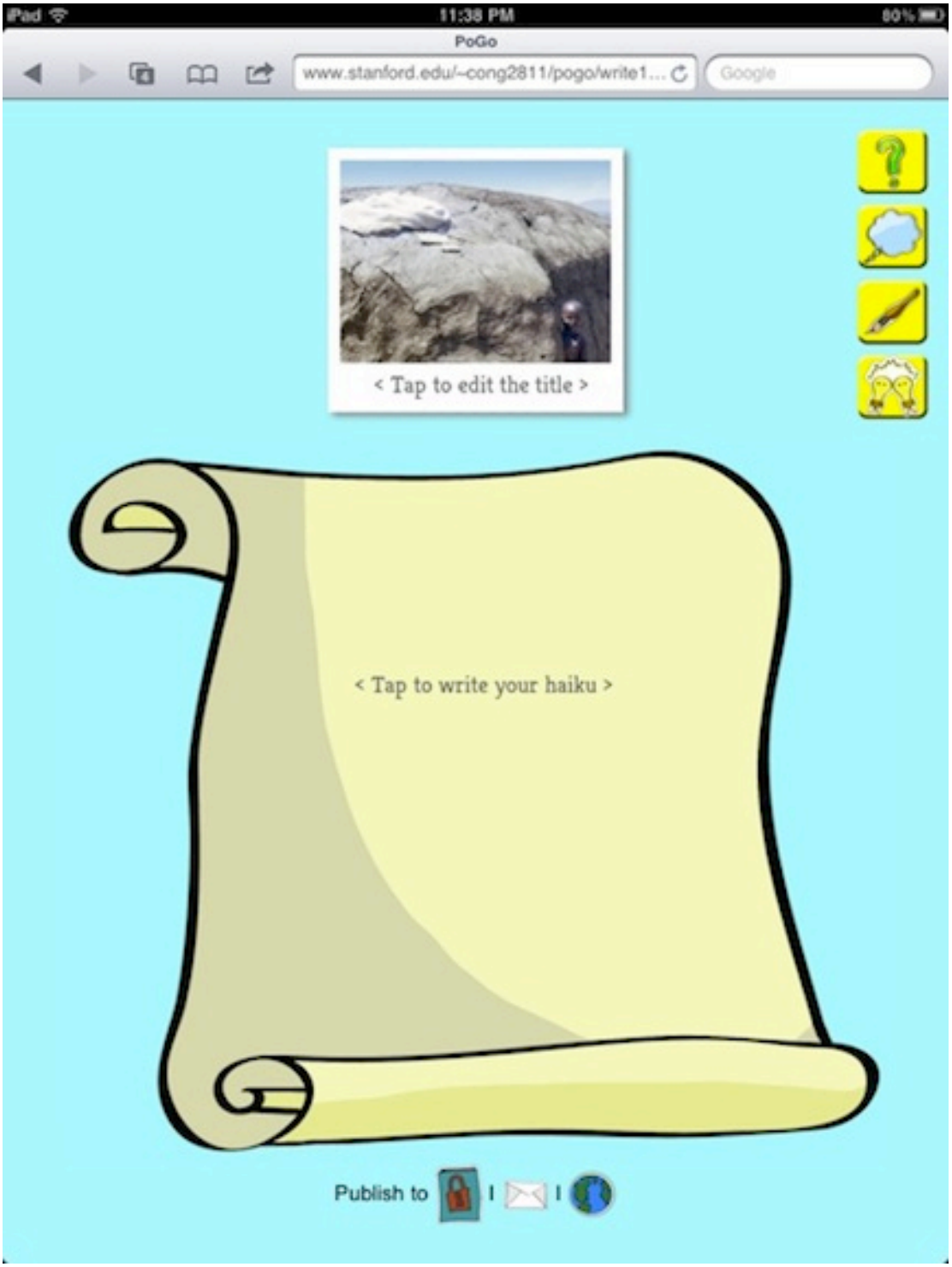
3. Users select a poetic form by dragging and dropping it into the placeholder.



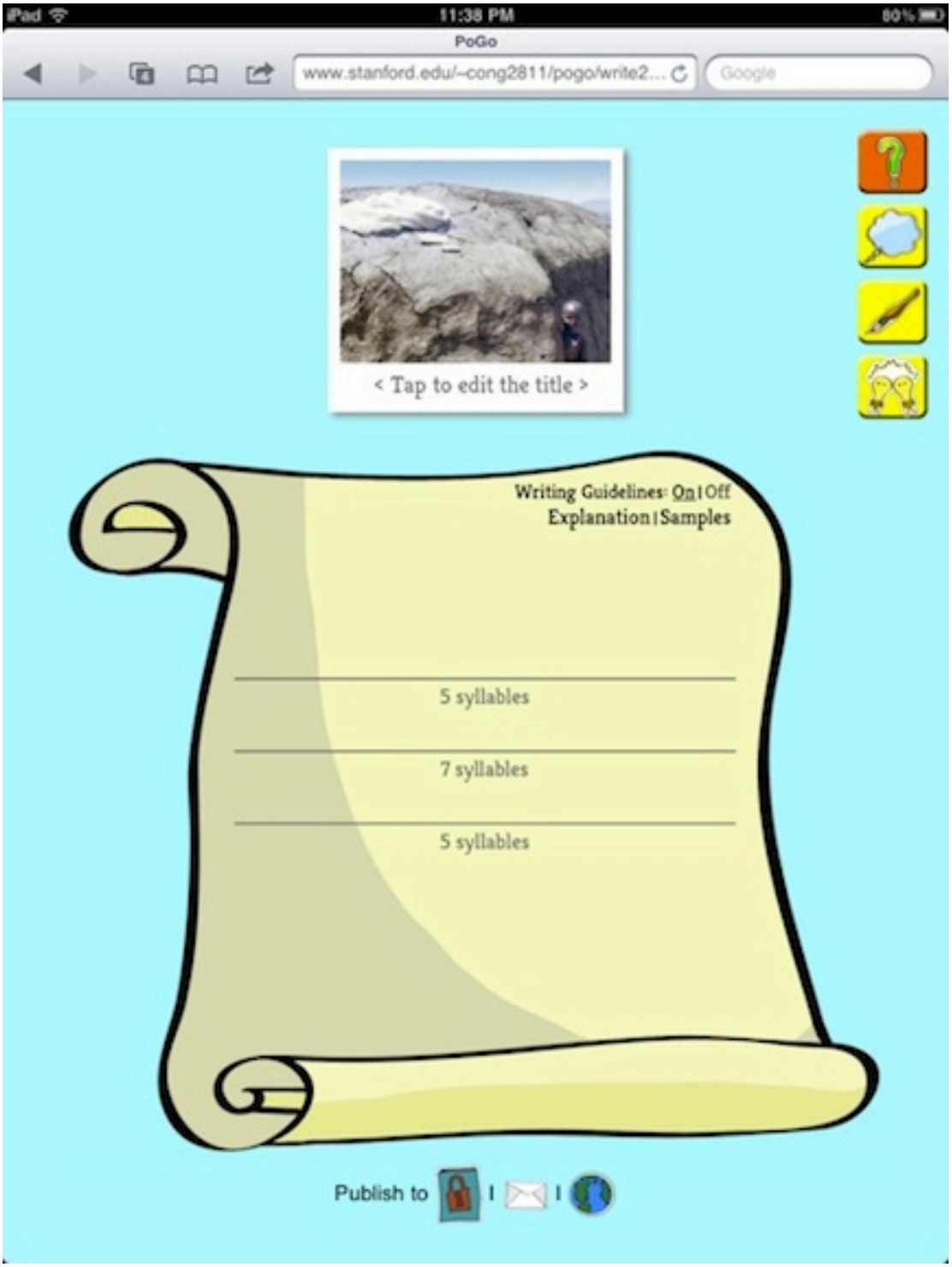
4. Users tap on the thumbprint to confirm their selections and start writing.



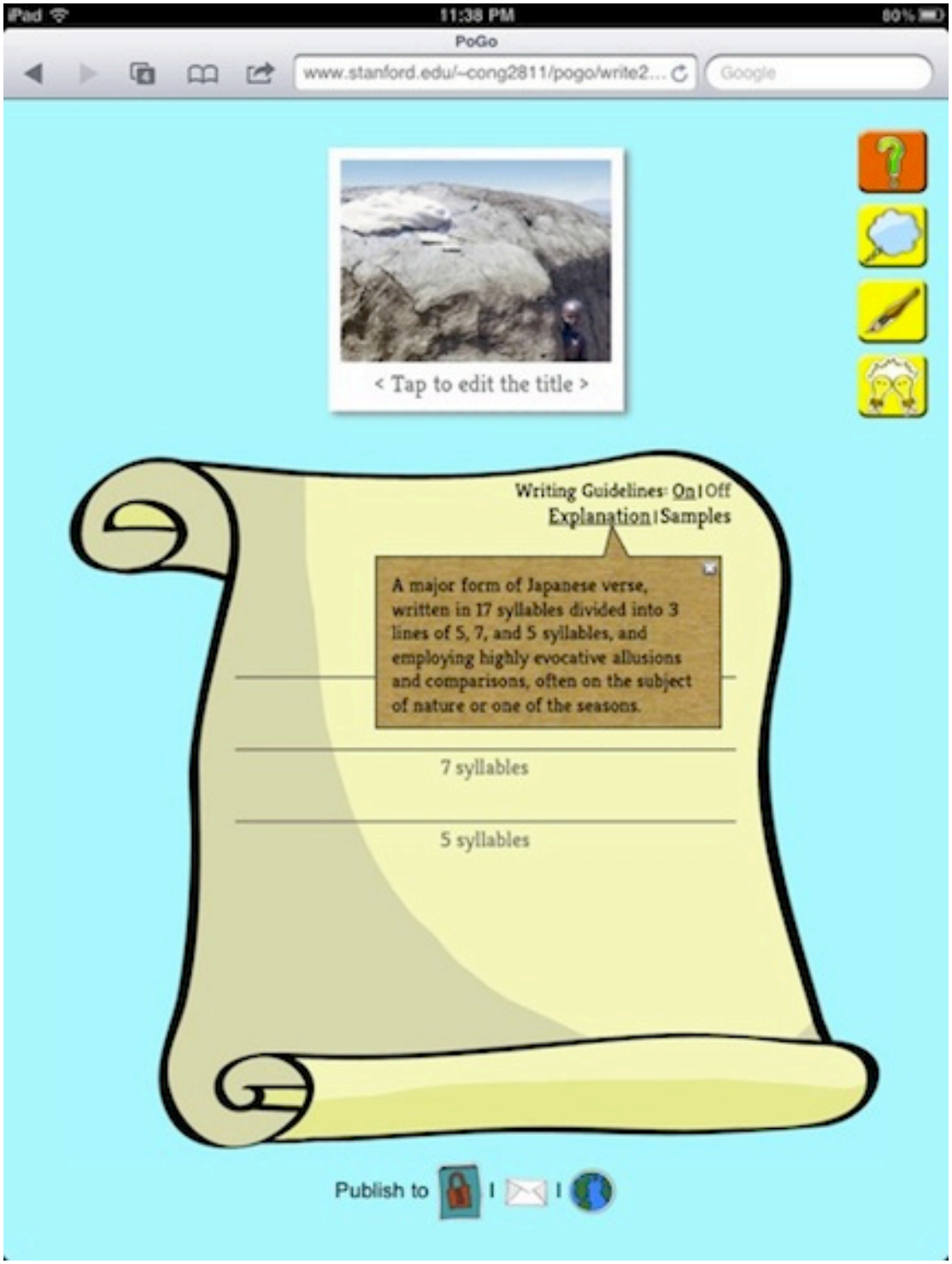
5. Users can either start writing without assistance or turn on writing guidelines and support by tapping on the scaffolding icon .



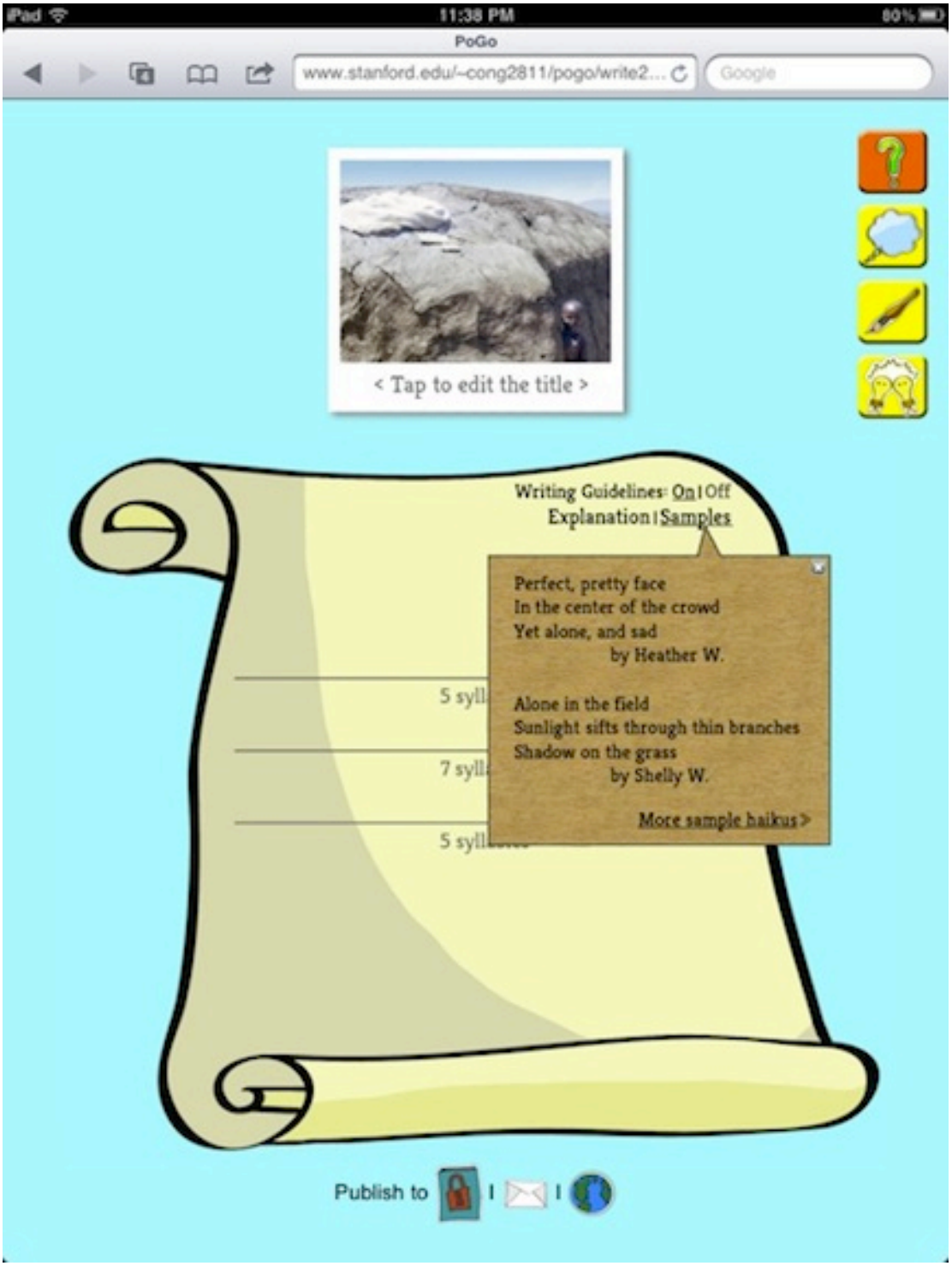
6. Features of the poetic form, in this instance haiku, will be made explicit to users through writing guidelines, e.g., no of syllables per line.



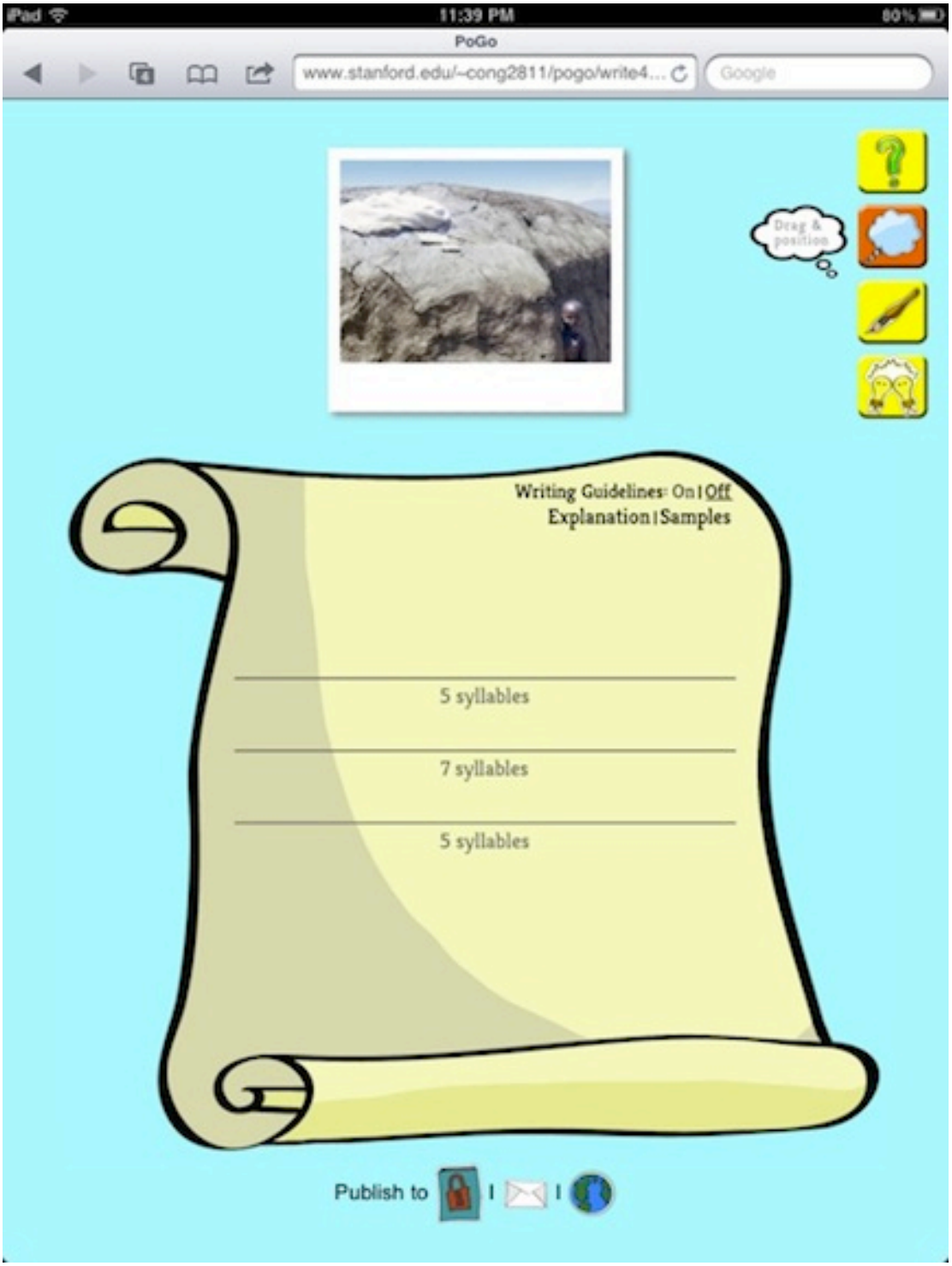
7. Definition of the poetic form (Explanation) is also offered on demand and in a non-intrusive manner.



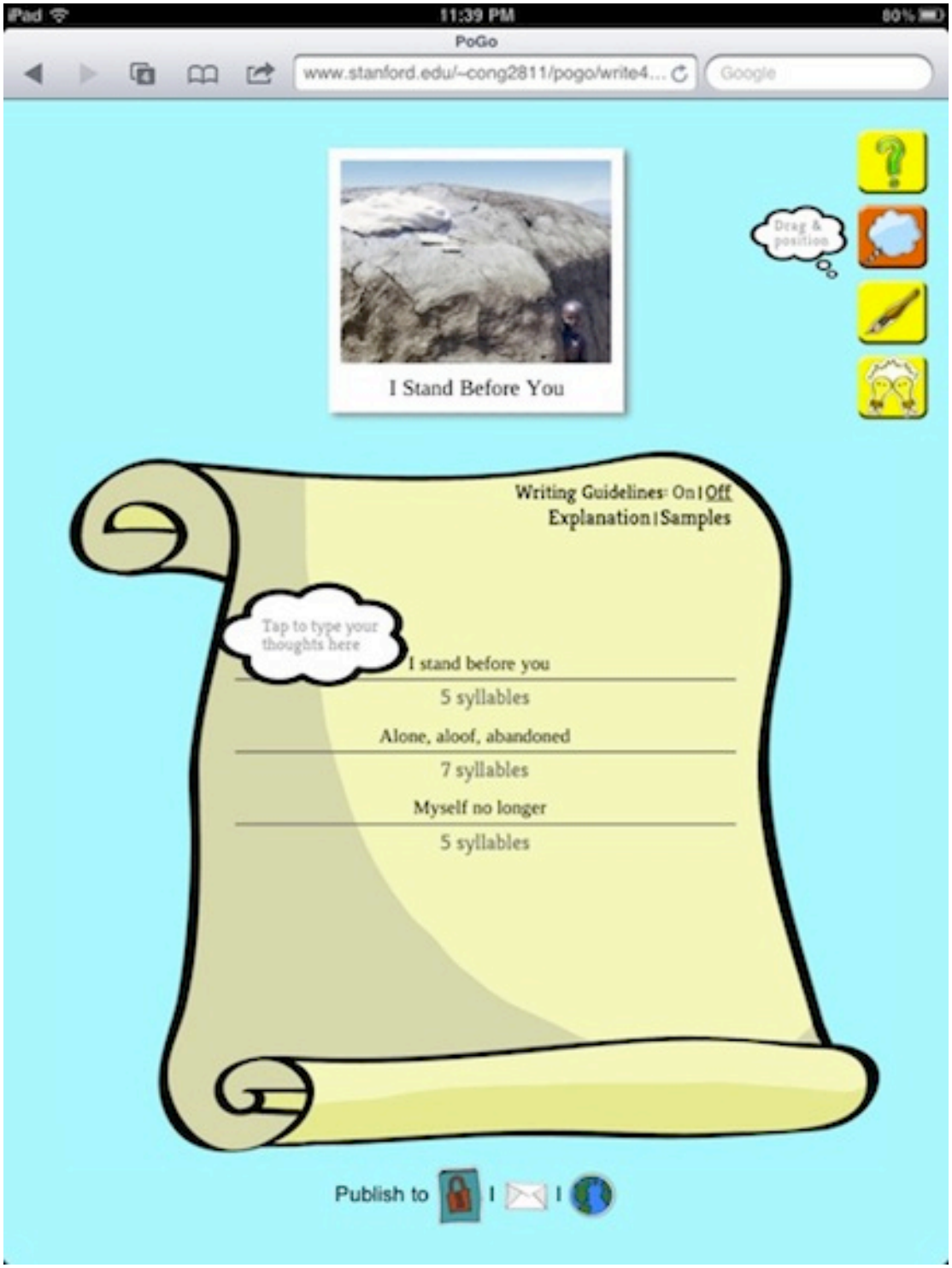
8. Recognizing that mimicry is one way of learning, sample poems are also made available for users' reference.



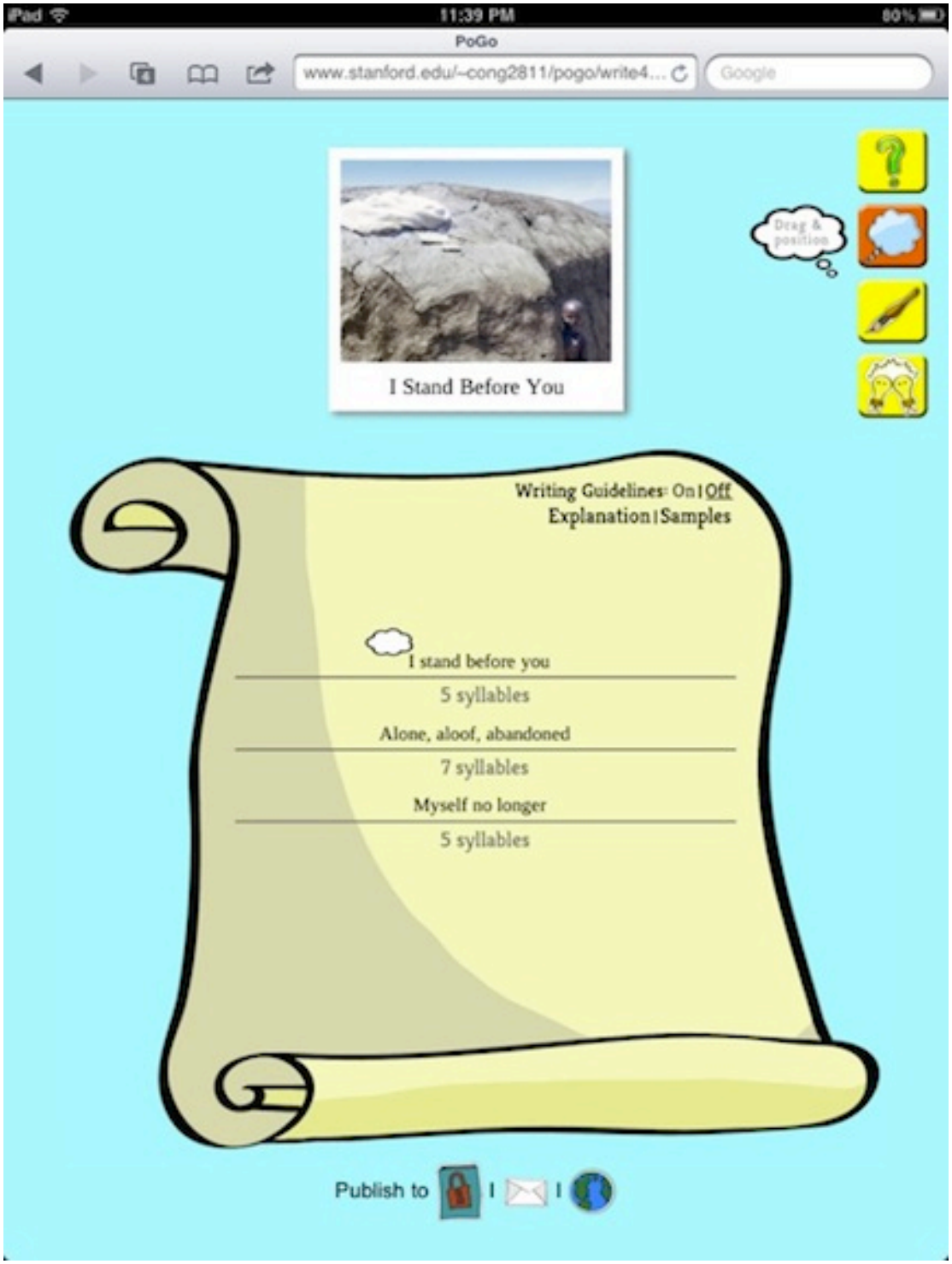
9. To encourage meta-cognition and to provide users a means to record any thoughts and ideas that come to mind, users can drag and drop thought bubbles to any part of the writing canvas.



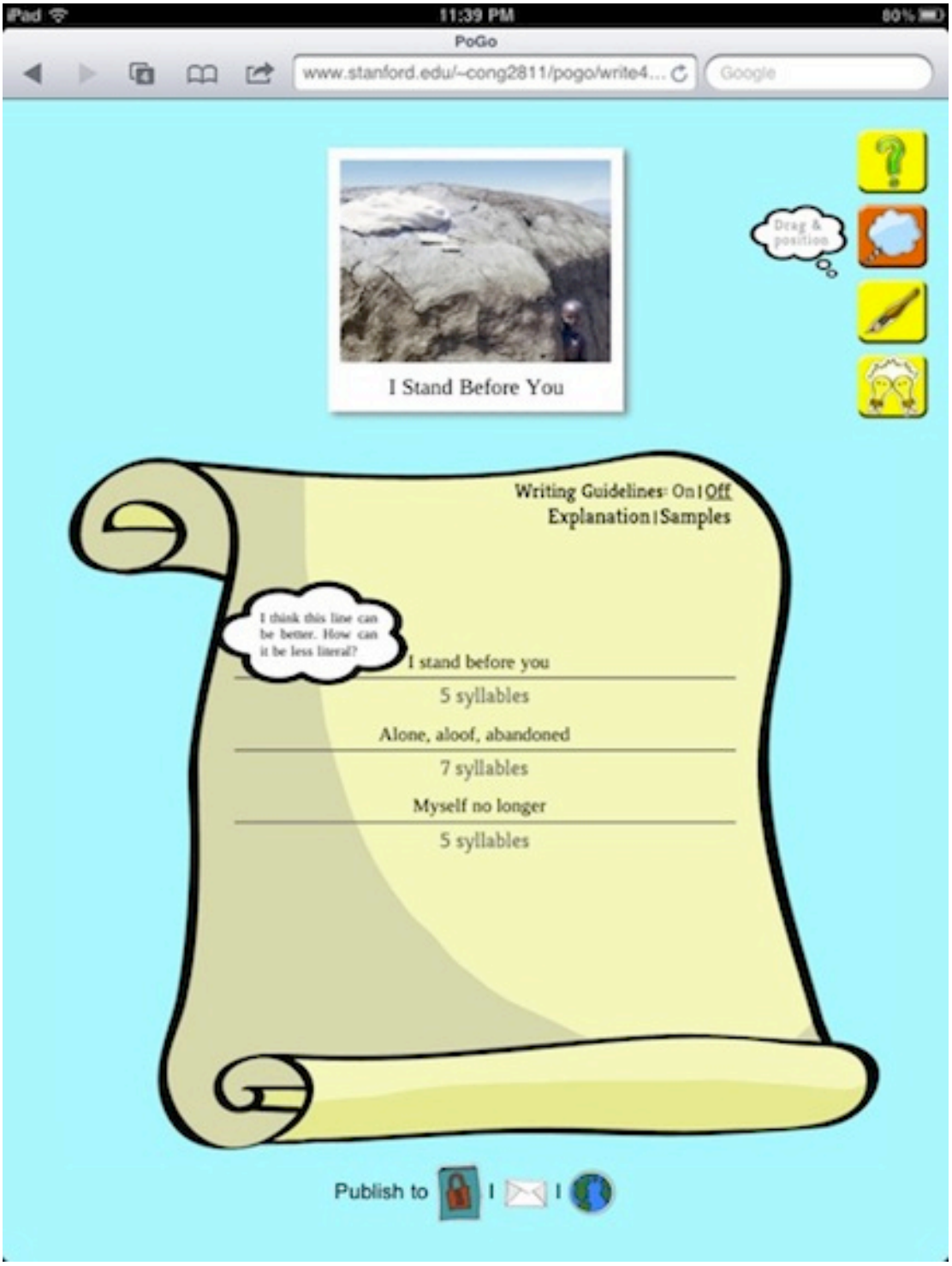
10. After positioning the thought bubble, users tap on the thought bubble to type their thoughts.



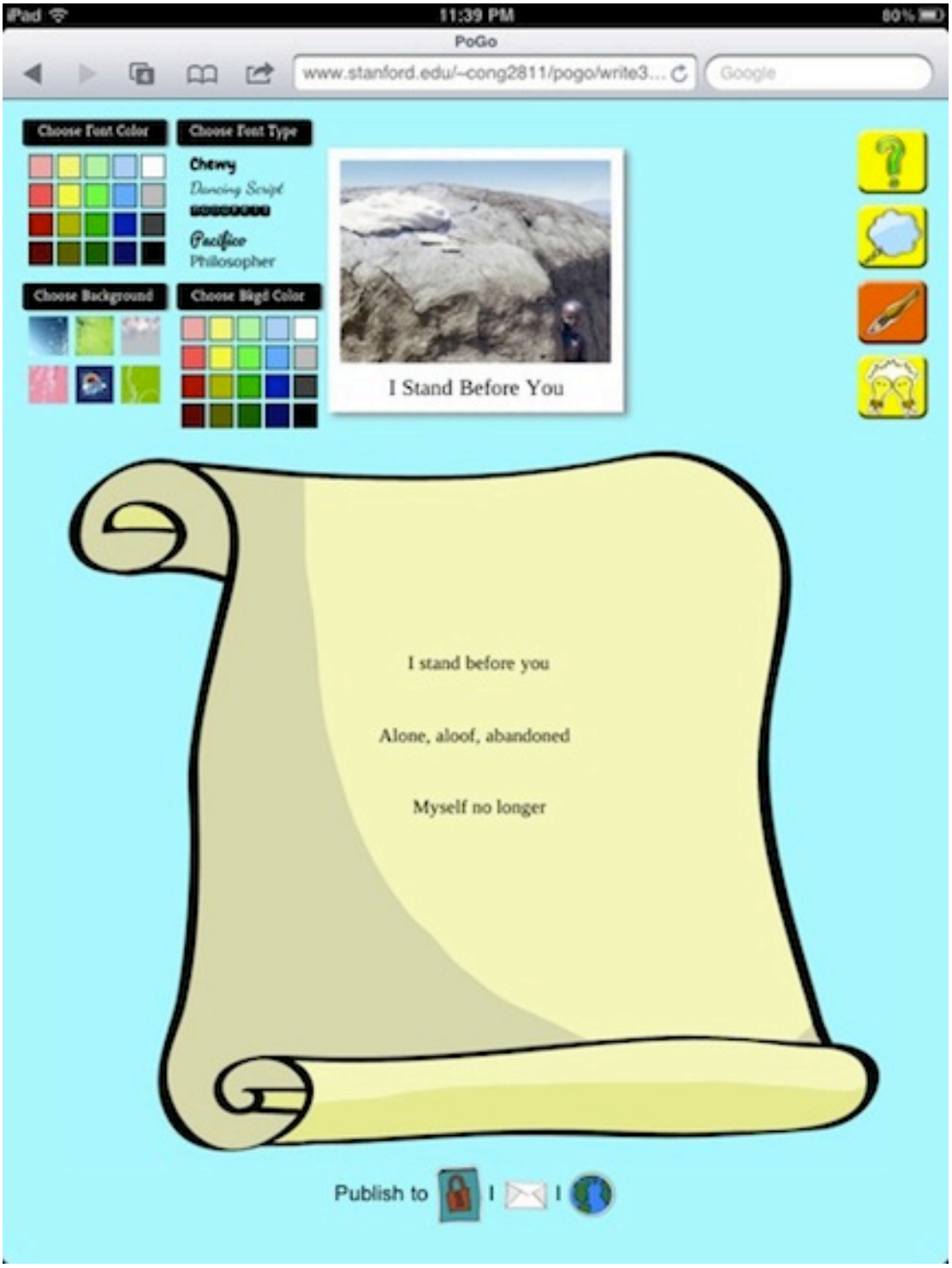
11. Thoughts recorded in thought bubbles would be kept away from view to minimize clutter on the screen.



12. Users can tap on the thought bubble to 'recall' the thoughts they recorded earlier.



13. In the design module, users have 4 options on how they can redesign their poem layout.



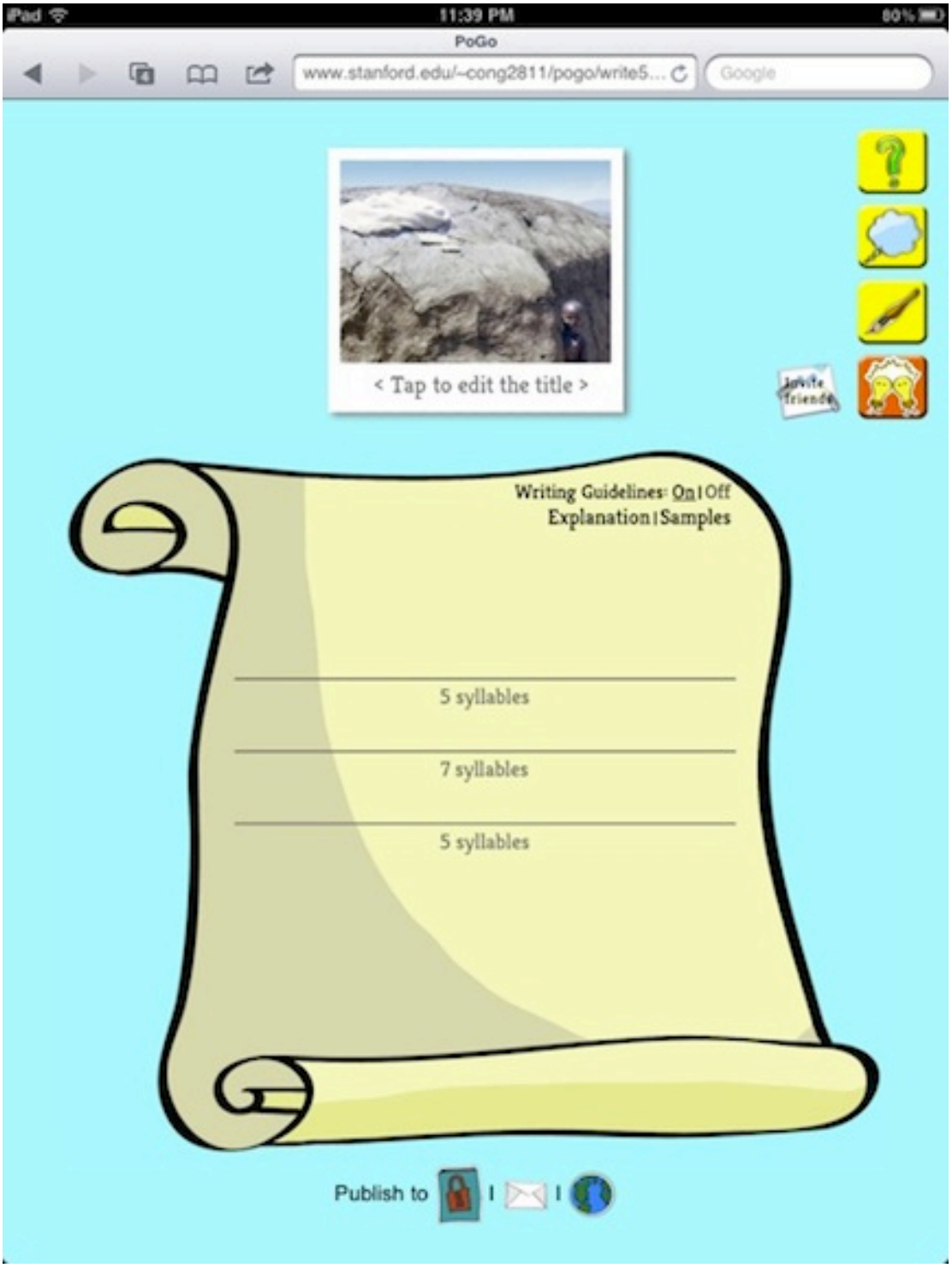
14. Users can change the background image of the writing canvas.

15. Users can change the font color of their poem.

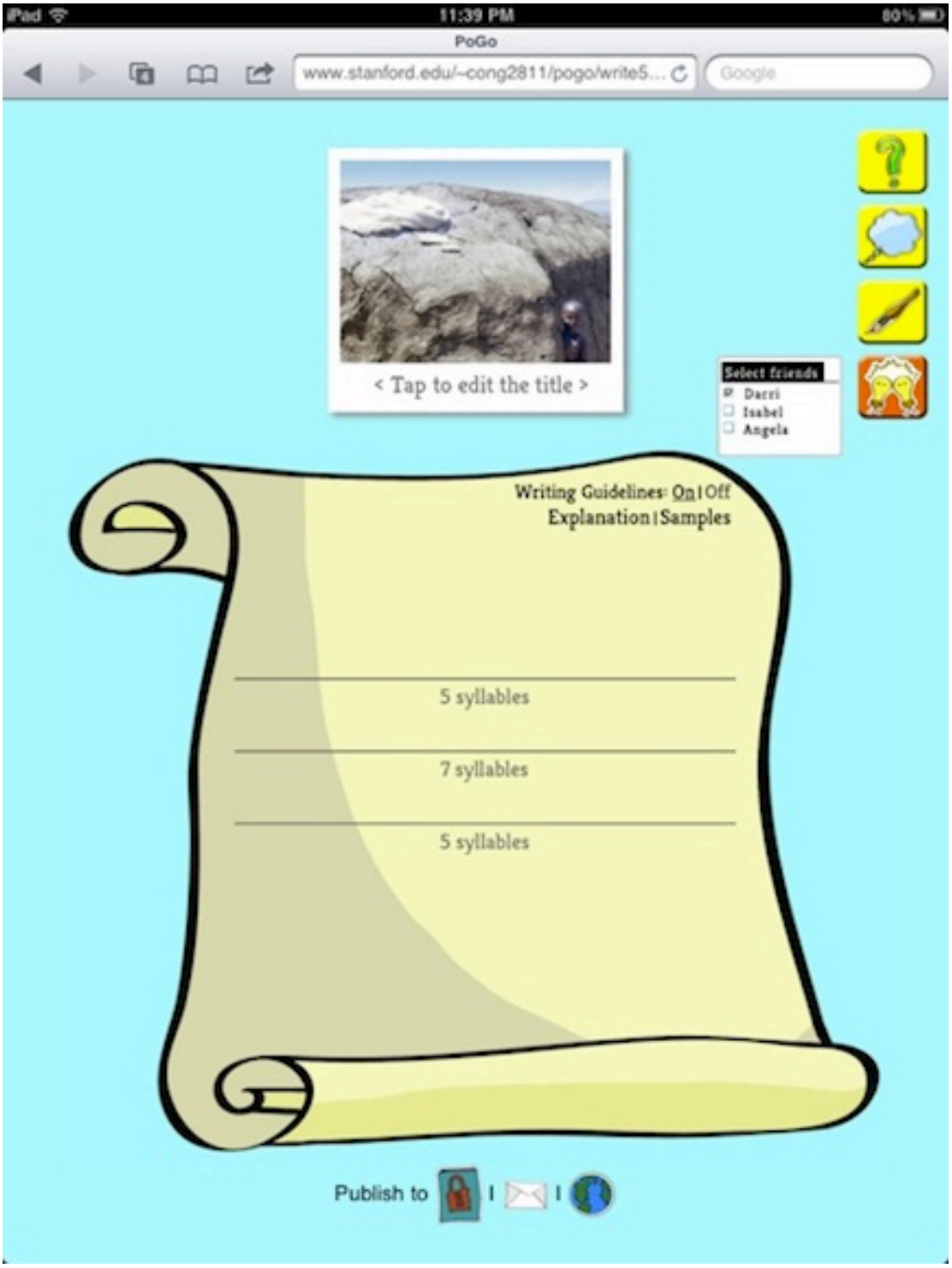
16. Users can change the typeface of their poem.

17. Users can change the background (border) color of the writing canvas.

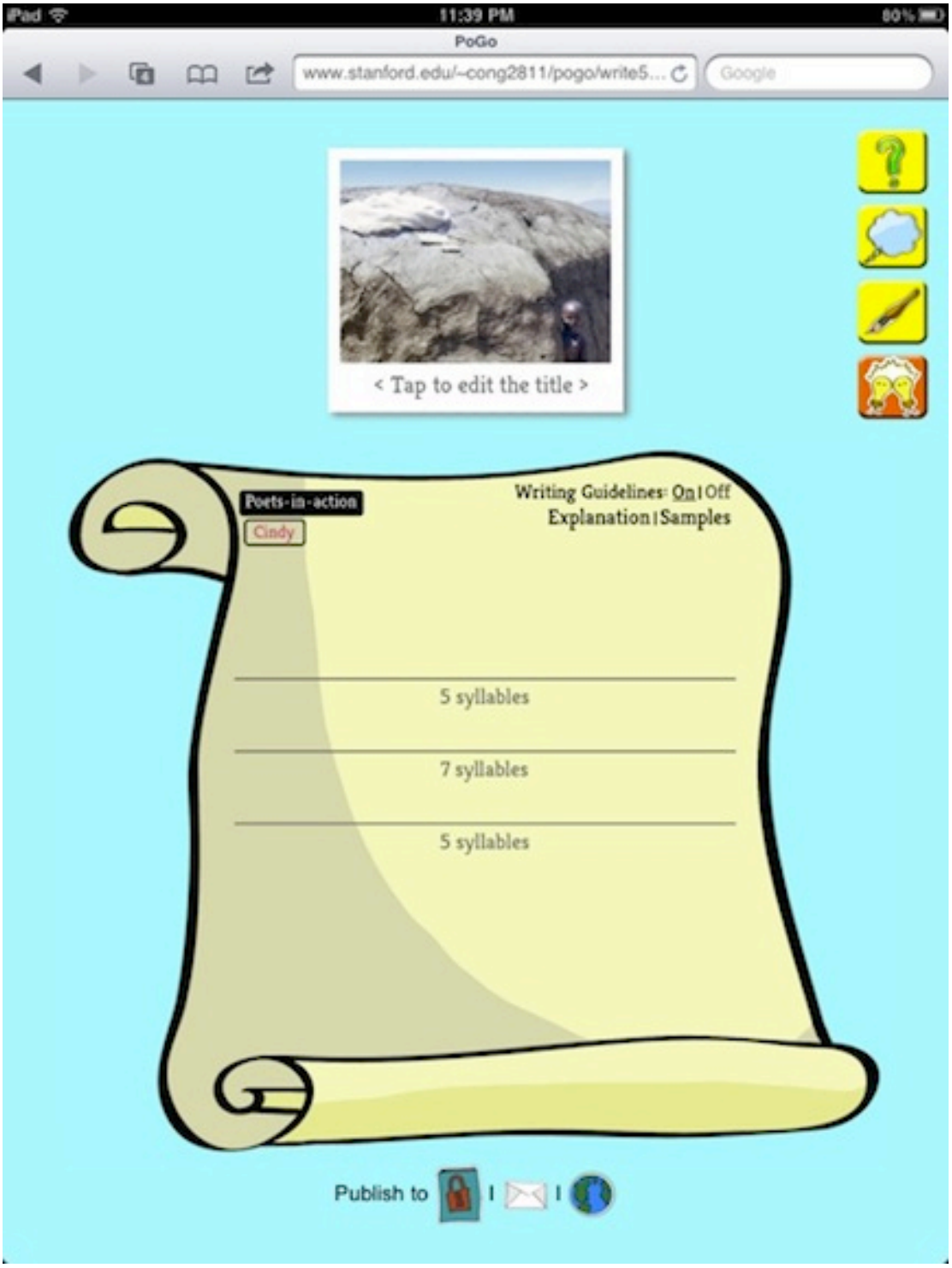
18. In this collaboration module, users can invite friends to co-author poems.



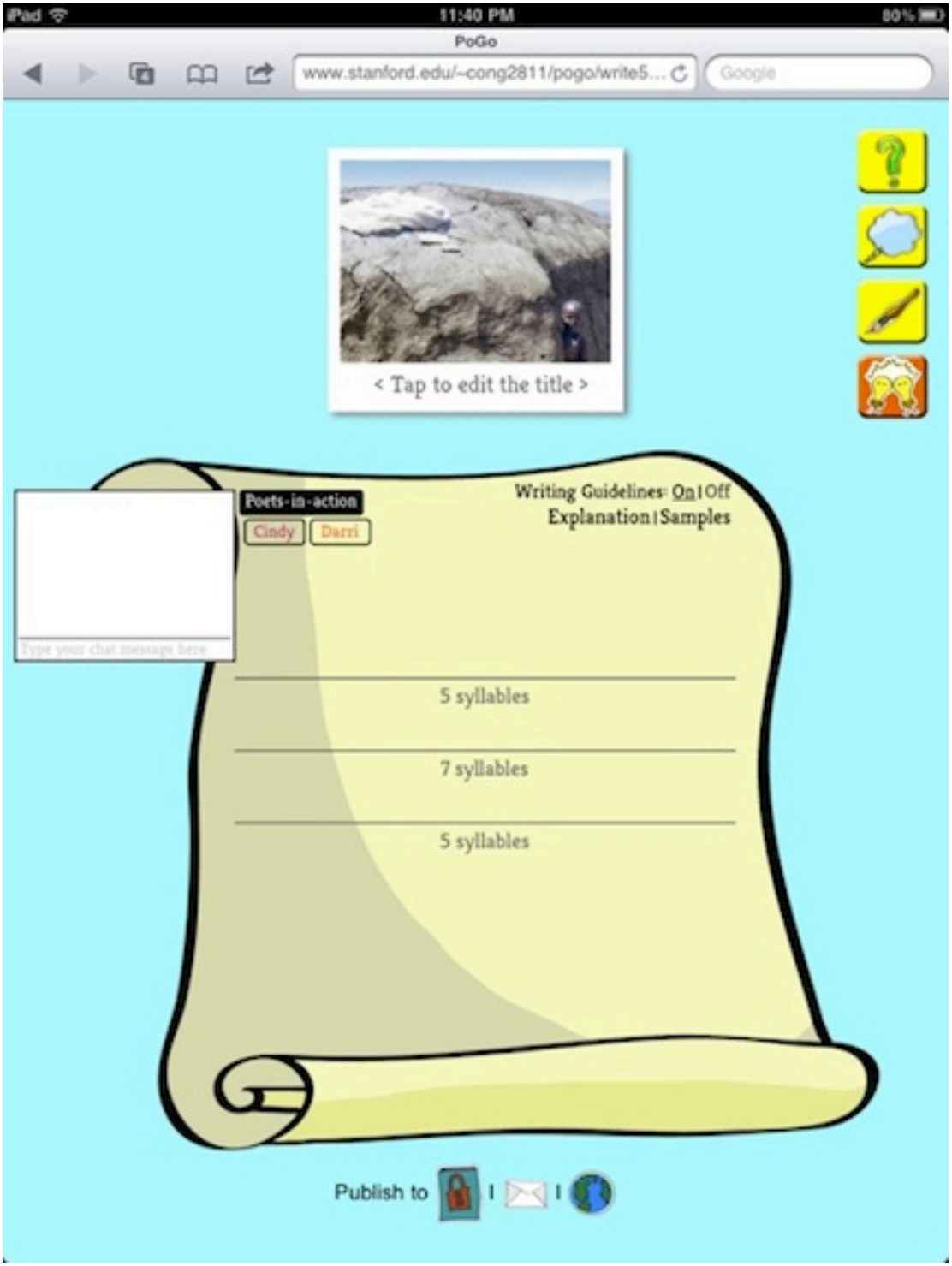
19. Users can select individual(s) they want to co-author with from a drop-down list of friends.



20. Users can start writing as they wait for their friend(s) to accept the invitation.



21. A chat box will appear together with the name of the friend(s) who accepted the invitation to co-author. This is to encourage and facilitate communication during the writing process.



22. Each user will have his / her color and all his / her contributions will be color-coded for ease of reading.