Social Media Network for Children: GoCard

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1 Introduction

Social networks have become an essential part of how young people communicate, learn, and express themselves. Although most of the research focuses on teenagers or older children, much less attention is paid to younger children, even though they are also increasingly exposed to digital environments. At the same time, existing children's platforms exhibit significant variations in safety, usability, and educational value. However, some platforms overprotect users to the point of limiting creativity, while others offer engaging experiences but introduce risks that children aged 6 to 10 may not be prepared to handle.

The aim of this project is to explore whether it is possible to design a digital space that is safe and meaningful for young children. For this, an academic literature review is done to understand the psychological risks and benefits of social media, and a software review analyzing popular children's platforms. These reviews provide the foundation for the new children's social network developed later in the project, helping identify which features support healthy interaction and which design choices should be avoided.

2 Literature Review

In recent years, researchers have become increasingly interested in how social networks affect young people's mental health. When reading the articles, I noticed that most studies agree that social networks can be harmful and helpful depending on how they are used. The three studies I chose, Liu et al. [1], Vannucci et al. [2], and Lavis and Winter [3], helped me understand this balance between risks and benefits.

Liu et al. [1] conducted a large meta-analysis that included several studies with a large number of adolescents. Their results showed that the more time teenagers spend on social media, the greater their risk of developing symptoms of depression. In fact, the probability of depression increased by about 13% for every additional hour spent online. In addition, the effect was stronger in girls than in boys, which the authors related to social comparison and appearance-based pressures. They also explained that the use of social media can replace positive offline activities such as sports or face-to-face conversations, which are important for emotional health. Furthermore, they indicated that the relationship could go both ways; young people who already feel sad might use social networks more to distract themselves or seek support.

Similarly, Vannucci et al. [2] found connections between social networks and risky behaviors, such as alcohol use or unsafe sexual activity. Their meta-analysis of studies showed a moderate correlation between

the two. The authors used some theories to explain that online environments often increase peer pressure. For example, likes and comments act as social rewards that make risky behavior seem popular or acceptable. However, the researchers also mentioned that young people are not passive victims of influence, they help create their online cultures, and those who already take risks may be drawn to certain platforms.

Although both of these studies highlight the dangers of social networks, Lavis and Winter [3] provide a more positive perspective. Through an ethnographic analysis of a huge number of self-harm posts on platforms such as Instagram and Reddit, they found that online spaces can also offer emotional support and connection. Many teenagers use these communities to share their experiences and feel understood, especially when they cannot find that support in real life. The authors warn that banning this kind of content might remove one of the few spaces that some young people have.

In general, these studies show that social media has two sides: it can harm mental well-being if used excessively or without guidance, but it can also promote empathy and support when used in a healthy way. This explains that the goal should not be to ban social networks for children, but to design safer and more positive platforms. Understanding these findings is very important for my own project, as my children's social network aims to reduce the negative effect while encouraging healthy communication and digital well-being.

3 Software Review

Today, although there are several existing platforms to create safe digital spaces for children, none of them fully meets the needs of younger children aged 6 to 10. Most existing networks either protect children extremely well but limit their creativity, or offer freedom but become too complex or risky. To better understand how to design a children's social network, it is necessary to study existing platforms, and by comparing their strengths and weaknesses, it can be identified what to adopt and what to avoid.

LEGO.com for kids [4] is one of the most relevant inspirations for this project because it manages safety through design rather than only through moderation. Children can not use real photos or personal information, and accounts use automatically generated usernames. One of its greatest advantages is that children can interact without risking exposure to personal information or inappropriate content. Another strength is how *LEGO.com for kids* [4] encourages creativity through challenges and themed activities. The platform limits children's ability to express themselves, since communication is restricted to stickers or predefined messages. Although this can be seen as a disadvantage, it serves a valuable tool for a children's network designed (ages 6 to 10) to prevent inappropriate language.

Animal Jam [5] combines a virtual world with educational elements and social play. Children can customize their animal avatars, explore areas, and play mini-games with friends. A key strength is its "safe chat" system, where younger children can only use pre-approved words or menu-based chat. This dramatically reduces the risks of inappropriate communication. However, the platform includes an open-world environment that can become chaotic for very young users, and players sometimes interact with strangers. This highlights the importance of keeping social interactions small, predictable, and limited to a controlled friends system rather than an open-world multiplayer environment.

Webkinz [6] is another virtual world that mixes elements of the game, item collection, and social play. Children collect virtual pets, decorate rooms, and earn rewards through mini-games. *Webkinz* [6] also includes a type of safe chat, where players communicate using pre-set phrases or icons. One strength is how the collecting aspect keeps children engaged without requiring complex mechanics. However, the platform suffers from overloading and bad UX design, leading to a confusing and overcrowded user experience, making navigation difficult for young users. This highlights the importance of clear layouts, large buttons, and simple navigation paths.

Across these platforms, several patterns emerged. Controlled communications systems, such as emojis or pre-approved phrases, are essential for protecting young users from harmful content. Collecting items or completing simple challenges keeps children engaged, but open-world or text-heavy designs are not appropriate for ages 6 to 10. A successful children's network must combine playful elements with simplicity, safety-by-design, and predictable structures.

These insights clarified that a children's social network should avoid open chat, free text, and real photos, limit cognitive load, and integrate creativity into a simple and consistent theme.

4 Why a New Children's Social Network is Needed

Based on both the results of both literature and the software review, it becomes clear that there is a significant gap in current digital platforms for children aged 6 to 10. The literature highlights that social networks can expose young users to risks such as harmful content, social pressure, and negative emotional effects, especially when networks are not designed specifically for their developmental stage. At the same time, it also shows that online spaces can support connection, creativity, and positive communication when they are carefully designed.

However, the platforms analyzed in the software review demonstrate that existing children's networks often fail to balance these needs. Some, like *LEGO.com for kids* [4], are extremely safe but restrict children's expression. On the other hand, *Animal Jam* [5], offers creativity and social play, but introduces chaotic environments and interactions with strangers. Platforms like *Webkinz* [6] encourage collection-based engagement, but suffer from overloaded interfaces that are not suitable for younger users.

These gaps indicate a need for a new children's social network that is both safe and developmentally appropriate, while still offering meaningful opportunities for creativity and interaction. A platform that avoids free text, real photos, and open-world environments but includes simple navigation, controlled communication such as emojis, and playful collecting mechanics can provide a healthier alternative. By integrating the positive elements identified on existing platforms and addressing their shortcomings, a new system can offer a safer, more focused, and more engaging digital space for children within this age group.

5 My Children's Social Network: GoCard

GoCard is a digital platform designed as a collectible card game specifically for children aged 6 to 10. I chose this age group because children at this stage are starting to explore social spaces online independently,

developing social and cognitive skills, but are still very vulnerable to online risks. GoCard aims to provide a safe and controlled environment in which children can be creative, interact with friends, and have fun in a positive way.

Every GoCard user has a randomly generated username and a customizable avatar, which makes the platform anonymous and avoids using real photos. This is essential for safety, as it protects personal information and avoids exposure to inappropriate content. Children can change their avatars and choose how they express themselves visually, but all interactions are safe and predictable.

5.1 Main Activities

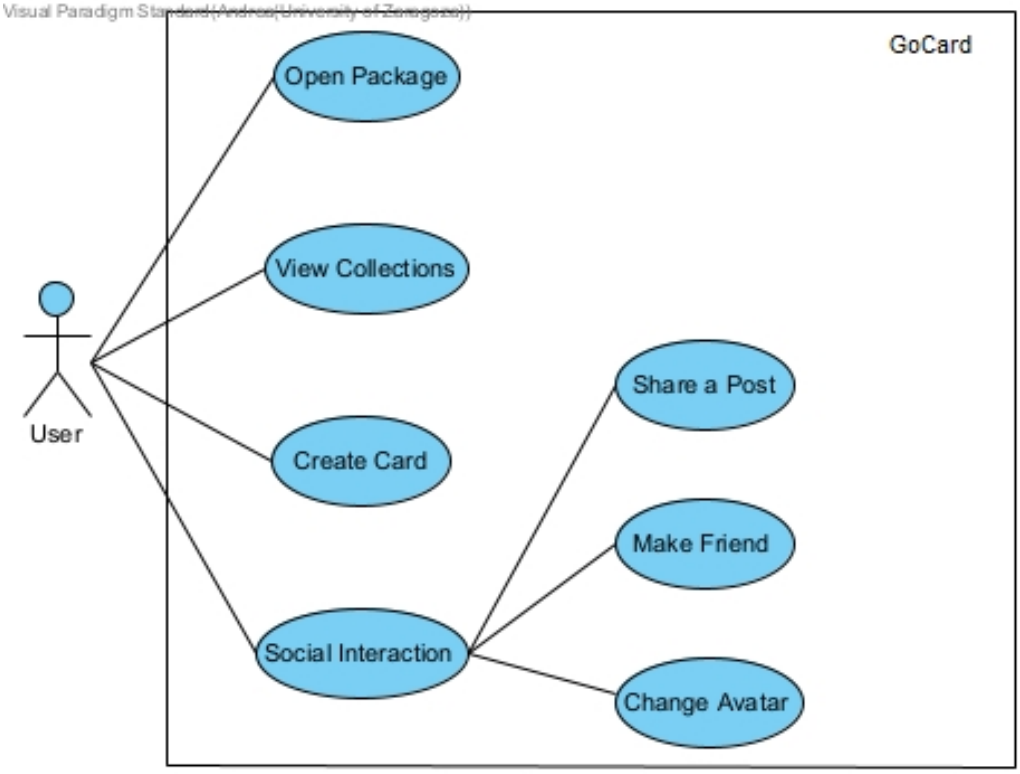

Figure 1: GoCard Use Case Diagram

- **Opening Packages:** Users can open digital packs and discover new cards. This is exciting and engaging for the children, but it is safe because there are no real-world transactions or unsafe interactions.
- **Viewing collections:** Children can view their own collections, providing a sense of achievement and ownership.
- **Creating cards:** Users can design their own cards, which encourages creativity and self-expression in a structured and safe way.

- **Social interaction:** Friends can connect within the platform, share posts about their cards, and interact using emojis. This controlled social system lets kids communicate without the risks of open chat.

5.2 Principles

- **Safety by design:** No real photos or personal information are allowed and all communication is controlled through emojis or safe posts.
- **Simplicity and clarity:** The interface has large buttons, clear layouts, and easy navigation, so even younger children can use it without getting lost or confused.
- **Predictable interaction:** Social interactions are limited to friends and known circles, and the game mechanics are simple and understandable.
- **Engagement through play and creativity:** Gamified mechanics like collecting and creating cards keep children motivated and make the platform fun and educational.

By combining these features, GoCard solves the problems of existing children's platforms while keeping fun and creativity. Provides a safe, fun, and developmentally appropriate space where kids can socialize, create, and explore in a controlled and engaging card game environment.

6 Gulf of Execution and Gulf of Evaluation

6.1 Gulf of Execution

To reduce this gulf, GoCard uses large and colorful icons instead of long text labels. Children of this age understand visuals much better than written instructions, so actions such as opening a pack, posting, or creating a card are represented with simple symbols. The navigation flow is also kept very predictable: for example, opening a pack always follows the same steps, with no extra menus or options that could distract them.

Another way in which the platform reduces the gulf of execution is by limiting the number of choices on each screen. Young children can feel overwhelmed if they see too many buttons or different paths to follow, so GoCard tries to show only the options needed in the moment, making it easier for them to learn the interface.

6.2 Gulf of Evaluation

GoCard uses animations, sound effects, and simple confirmations to help children understand system responses. For example, when a pack is opened, each card appears with a small animation so that the child knows exactly what they received, and when a friend reacts to a post, the emoji quickly animates so that the user notices it.

If something cannot be done, the system shows very simple visual explanations. For example, a user cannot react to their own post, so the emojis are disabled. Moreover, another example can be that the user

receives alerts after clicking on the button of ”Save Card”, informing the user if the card is correctly saved or not.

7 Universal Design Principles

Since the platform is designed mainly for children aged 6 to 10 years, they probably would have different levels of digital experience, the universal design principles are intended to be followed as much as possible.

- **Equitable use:** All children can use the platform in the same way, regardless of how well they read or whether they have used social apps before. The focus on icons and simple interactions makes the experience inclusive.
- **Flexibility in use:** There are different ways to interact with the interface. For example, when creating a card, children can use different shapes or colours by clicking on the buttons or using the keyboard.
- **Simple and intuitive:** The layout is consistent across the whole platform. Buttons are large, menus short, and navigation always follows similar patterns. This reduces confusion and helps children learn quickly how things work.
- **Perceptible information:** Visual feedback consists, for example, of several alert messages. Animations and icons help them understand what is happening at all times.
- **Low effort:** The system avoids actions that require precision or long writing. Everything is based on taps, basic scrolling, and choosing from small sets of options, keeping the experience relaxing.
- **Tolerance for error:** Social interactions are kept safe by design. Because there is no open chat, children cannot accidentally send something inappropriate or unsafe.

8 Software Architecture and Gang-of four design pattern

8.1 Software Architecture

GoCard is built using a modular architecture that separates the system into three different layers. This makes it easier to maintain and safer because the responsibilities are clearly divided.

The first is the presentation layer, where all the HTML and JavaScript view classes are located. This layer is responsible for showing the interface to the user and capturing all their interactions, such as opening a pack or reacting to a post. These views do not contain any logic; instead, they communicate with the service layer. Secondly, the service layer handles the actual application logic. It contains different service components that manage actions such as loading collections, generating cards, or processing reactions. This layer also contains the CardFactory, which follows the Factory Method pattern. Thanks to this structure, the service layer decides what needs to happen when the user interacts with the interface, but it does not deal directly with how data are stored.

Finally, the Data Layer defines the main models of the system: User, Card, Package, and Post. This layer also contains a Command submodule, which groups small user actions such as the different ways of drawing and creating a card, as well as the dummy UI data and the image assets. Keeping all data structures in this layer makes the system more predictable and helps the back-end manage collections, posts, and packages in a consistent way.

In general, this layered architecture creates a clear flow of information between the user interface, the services, and the data structures. It also makes the platform more scalable and much easier to extend in the future, since each layer has its own responsibility.

8.2 Gang-of four design pattern

The Factory Method pattern is used in GoCard to organize how different types of cards are created. CardFactory is the abstract creator that defines the createCard() method. The concrete factories, DinosaurCardFactory and SpaceCardFactory, override this method to return their specific card objects. On the product side, Card is the abstract class, while DinosaurCard and SpaceCard are the concrete products that represent each card type available in the system.

The main advantage of using this pattern is that card creation becomes completely separated from the rest of the logic. For example, when a user opens a package, the service layer does not need to know which type of card is being created or how to build it because the corresponding factory just handles that. This makes it very easy to add new collections in the future without having to rewrite existing code, improving both maintainability and scalability.

In addition, the Command pattern is also used in GoCard. Small user actions during card creation, such as adding shapes, applying colours, or saving the final design—are implemented as individual command objects. This makes each action modular and easy to manage, and it also simplifies the addition of new actions in the future. By encapsulating these operations, the Command pattern keeps the interface clean and reduces the complexity of the creation process.

9 Conclusion

GoCard shows how a digital platform can be designed to support creative interaction while maintaining a controlled and safe environment for younger users. By integrating simple but effective design principles, the application provides a structured space where children can create cards, explore different themes, and interact in a guided way. The use of design patterns such as Factory Method and Command contributes to a modular and maintainable architecture, making future extensions and improvements easier to implement. In summary, GoCard offers a foundation for a child-friendly digital experience, showing that it is possible to combine creativity, usability, and safety within a single application.

References

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